

**THE INFLUENCE OF PERFECTIONISM ON
SOCIAL PHYSIQUE ANXIETY**

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appraisal characteristics as contributing to threat, the importance of differing motivational orientations as contributing to variations in cognitions and affective responses (Deci & Ryan, 1985) may be equally important. Therefore, in addition to Study 1, the purpose of Study 2 was to investigate the influence of perfectionism on levels of self-determination (Deci & Ryan, 1985), SPA, threat, and enjoyment through the mediational role of perceived competence and autonomy. In addition to the measures used in Study 1, two hundred and eighteen participants (192 females, 26 males) further completed a measure of locus of causality for exercise and a measure of regulation in exercise behaviour. Path analyses results provided little support for Study 2 ($\chi^2/df = 11.85$, BBNNFI = 0.23, Robust CFI = 0.27). Overall, the results from the second part of Study 1 and Study 2 provide little support for the hypothesised relationships due to the overall poor fit of the models found. However, the results of the first part of Study 1 provided adequate fit indices suggesting that socially prescribed perfectionism more than self oriented perfectionism influences SPA. In turn SPA significantly and negatively influenced self-efficacy as would be expected. Furthermore, both self-efficacy and capacity beliefs significantly and positively influenced exercise enjoyment. The importance of investigating perfectionism and other individual difference factors as antecedents of SPA are discussed, and future research recommendations proposed.

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CHAPTER 1

STUDY 1

INTRODUCTION

A growing body of evidence within Western society suggests that a considerable proportion of the population is at risk of developing health problems primarily associated with physical inactivity and sedentary lifestyles (e.g., Bouchard, Shephard & Stephens, 1993; Taylor, 1999). For example, research in England has revealed that only 36% of men and 24% of women are physically active at a level that is recommended by the Health Education Authority (HEA; 1995). Media attention has also highlighted that “Britons are throwing away £250 million a year by joining gyms they barely use. Many visit their health clubs less than once a week and some quit altogether” (The Mirror, March, 2001, p.17). Similar data has been reported in the United States of America. While approximately 50% of the population remain inactive (e.g., Dishman, 1994; Kirshenbaum & Sullivan, 1983; Martin & Dubbert, 1982), approximately 50% of those who initiate an exercise regime will drop out during the first 3 to 6 months (Dishman, 1988, 1994; Oldridge, 1982; Taylor, Sallis, & Needle, 1985). This trend has been found among children, college students, middle-aged, and elderly people (Robison & Rogers, 1994; Young, Skelton, Walker, & Hoinville, 1997).

Public Health Policies

The public burden of a sedentary lifestyle is therefore high and as a consequence has invoked public health departments within the UK to develop a preventative orientation in public health policies. Activity promotion that advocates regular exercise as a way of reducing morbidity and mortality could provide a cost-effective strategy for public health improvement (Morris, 1994). For example, in 1996 the Health Education Authority launched a three-year *ACTIVE for LIFE* campaign supporting the government’s Health of the Nation strategy “in the hope that

ABSTRACT

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Activity promotion advocates regular exercise as a way of reducing mortality, thus providing a cost-effective strategy for public health improvement. However, many individuals embarking on a regime have unpleasant experiences and are more likely to withdraw. One construct identified in the literature that may contribute to this negative affect is social physique anxiety (SPA; Hart et al., 1989). Although the correlates and consequences associated with SPA have provided invaluable insight, there still lacks conceptual focus. Therefore, adopting the tenets of Lazarus (1999), one individual difference factor important in the cognitive appraisal process that may contribute to SPA is perfectionism (Hewitt & Flett, 1991). This motivational construct has been found to influence the appraisal process and predispose individuals to experience anxiety. Therefore, the purpose of Study 1 was to firstly, investigate the influence of individual differences in perfectionism on SPA and to secondly, explore the mediating influence of coping strategies on SPA, threat, and levels of enjoyment among beginner exercise class participants. In the first part of Study 1, four hundred and four (376 females, 28 males) participants completed measures of social physique anxiety, perfectionism, ability, importance, capacity beliefs, self-efficacy, threat, and enjoyment. In the second part of Study 1, only those participants who deemed that being good at exercise was important to them ($N = 317$) were used in the analyses. Path analyses results using structural equation modelling procedures provided adequate support for the first part of Study 1 ($\chi^2/df = 2.41$, BBNFI = 0.96, Robust CFI = 0.99), and little support for the second part of Study 1 ($\chi^2/df = 7.87$, BBNFI = 0.66, Robust CFI = 0.77). Although the research has acknowledged the importance of secondary

more people will recognise the benefits of moderate physical activity and will take advantage of the facilities that are increasingly available” (Department of Health, 1996, p.7). Support for recent health campaigns has been received from national television advertising and facilitating environments such as health clubs, local community settings, and primary health care settings (Browne, 1997; Taylor, 1999). It can therefore be seen that exercise and health appears to be one important factor on the British government’s agenda.

Positive Physiological and Psychological Benefits of Exercise

While health campaigns have tended to focus primarily on physical health, little has been documented regarding the positive mental health advantages to be gained. One suggestion that has been proffered for the lack of information on the way that exercise affects mental health is due to the preoccupation in Britain during the 1970s - 1980s with measuring physiological variables related to exercise participation (Biddle & Mutrie, 2001). While the importance of physiological improvements via exercise has been well established (e.g., Bouchard, Shephard, & Stephens, 1993), the issue of psychological benefits may be of equal importance (e.g., Biddle, Fox, & Boutcher, 2001).

During recent years, research has clearly identified that regular physical activity is purported to positively influence a wide range of health conditions (e.g., Dishman, 1994). Documented physiological benefits have included decreases in coronary risk factors such as hypertension, obesity, and elevated blood lipids (see Hardman, 1996), reduced symptoms in Type II diabetics (Feskens, Loeber, & Kromhout, 1994; Gordon, 1993; Vestergaard, Anderson, Lund, Schmidt, Junker, &

Pederson, 1994), increased bone density (Marcus, Drinkwater, Dalsky, Dufek, Raab, Slemenda, & Snow-Harter, 1992), and maintenance of movement in both rheumatoid arthritis and osteoarthritis (Sharratt & Sharratt, 1994). Whereas, psychological benefits have included enhanced mood, reduced depression, increased self-esteem, and positive well-being (e.g., Baldwin & Courneya, 1997; Biddle & Mutrie, 2001; Bouchard, Shephard, & Stephens, 1993; Dishman, 1994; King, Blair, Bild, Dubbert, Marcus, Oldridge, Paffenbarger, Powell, & Yeager, 1992; Mutrie, 1997; Seraganian, 1993).

Potential Maladaptive Aspects of a Sedentary Lifestyle

In contrast to the potential benefits of an active lifestyle are the potential drawbacks of a sedentary lifestyle and general inactivity. These drawbacks include increased obesity (James, 1995), coronary heart disease, and associated risk factors such as hypertension and diabetes, increased risk of strokes, reduced bone density, and back pain (e.g., Bouchard et al, 1993; HEA, 1995). Non-adherence may also have a significant negative influence on the mental health of individuals (Brewer, 1993). These may include feelings of inadequacy, guilt, and a lack of determination. Further mental health problems may include low self-esteem thereby influencing psychological dysfunctions such as anxiety and depression (Biddle, Fox, & Boutcher, 2001; Szabo, 2001). Therefore, the advantages of regular exercise would help to overcome a plethora of potential physical and mental health problems.

Barriers to exercise

Although the potential physical and psychological benefits of exercise have been discussed and in general, have been accepted by the public as contributing to a healthier lifestyle, not everyone will acquire these benefits to the same extent. Many individuals will have negative exercise experiences that will impact their adherence. Some individuals will be faced with personal and situational factors that will continue to act as barriers to their participation.

These barriers to non-participation could be seen to reflect motivational issues. Therefore, the study of motivation in this context is central to understanding individuals' behavioural choice and decision-making. However, few investigations to date have sought a conceptual understanding about issues concerning participation. Most studies have been atheoretical in nature while attempting to identify individual difference factors and situational variables that are most likely to contribute to maladaptive exercise experiences. For example, the three most frequently cited reasons given for exercise cessation were associated with boredom, loss of interest, and wanting to utilise the time for other interests (e.g., Allied Dunbar National Fitness Survey; ADNFS, 1992).

Although a great deal of these studies is descriptive, past research has suggested that barriers, whether actual or perceived, have been found to be major determinants of exercise adherence. Barriers have included: financial cost, inconvenience of adopting a regular routine, lack of social support, accessibility, and convenience (e.g., Dishman, 1988; Dishman, Sallis, & Orenstein, 1985; Fitzgerald, Singleton, Neale, Prasad, & Hess, 1994; Godin, Desharnais, Valois, Lepage, Jobin, &

Brader, 1994; King, Blair, Bild, Dishman, Dubbert, Marcus, Oldridge, Paffenbarger, Powell, & Yeager, 1992). Other researchers have further suggested that adherence has been affected by factors such as perceived behavioural control (e.g., Dishman & Steinhardt, 1990). Specifically, external constraints such as general lack of time due to work and family commitments etc. appear to be one predisposing factor to inactivity or physical activity disruptions (e.g., King et al., 1992; Palmer, Burwitz, Smith & Collins, 1999).

Equally as problematic as the *maintenance* of a regular exercise regime is the *initiation* of an exercise regime. For example, potential new recruits to health and fitness club settings are almost always required to attend physical screening or fitness testing assessments prior to participation. In some instances, for those individuals embarking upon a new health regime, the prospect of this screening is likely to invoke negative affective responses. Those individuals who perceive themselves likely to be negatively evaluated by the fitness instructor may experience negative affect such as anxiety. Such maladaptive responses are probably due as a result of those who doubt their current standing in relation to perceptions of what is expected by the instructor or in relation to some personal standard (Leary, 1992). These evaluative concerns are a natural and necessary aspect of interpersonal behaviour and are likely to arise due to individuals concerns about the impressions they may be conveying to others (Leary, 1992). According to Leary and Kowalski (1990), although individuals are not consciously trying to convey a particular impression, they are still likely to adjust their behaviour if they perceive they are making an undesired impression on others.

As a consequence, some individuals may choose to either abstain from exercise contexts or withdraw from the context in order to negate negative feelings. As a result, individuals may fail to attend their fitness assessment or habitually postpone the assessment until a later date, if at all. In this way, the positive physical and psychological benefits of exercise are either delayed or not forthcoming and may have strong ramifications for continued adherence and its associated health benefits. Therefore, an understanding of the antecedents of differing exercise experiences among individuals will allow a better understanding of variations in individuals' exercise investment.

In short, despite the increasing attention given to the importance of exercise in our everyday lifestyles, conceptual and empirical research has been slow in developing our understanding of maladaptive exercise experiences. This is likely due to much of the past research having been both atheoretical in nature and having identified individual difference factors contributing to negative affect without the application of a clear theoretical framework. However, one construct that may be important in understanding individuals' variations in exercise investment and evaluative concerns in exercise settings is social physique anxiety (SPA; Hart, Leary, & Rejeski, 1989). Recent research, suggests that as exercise settings provide a viable social context for potential physical scrutiny from the self or others (Leary, 1992, 1995), concerns about physical appearance will be evident. This can deter some individuals from being active due to concerns about being negatively evaluated by others (Hart, Leary, & Rejeski, 1989; Spink, 1992). Therefore, concerns about physical appearance or SPA (Hart et al., 1989), appears to be *one* contributing factor that may be of vital importance in explaining maladaptive exercise experiences.

Social Physique Anxiety

Recent research has clarified the importance of physical appearance as an important predictor variable in determining exercise behaviour (ADNFS, 1992; Harter, 1990). For example, body composition has been a consistent variable in discriminating between continued exercise participation and withdrawal (ADNFS, 1992; Bain, Wilson, & Chaikind, 1989; Dishman, 1981; Dishman, Ickes, & Morgan, 1980). In particular, overweight people have been found to be less likely to pursue a fitness regime through perceptions of embarrassment than those people who are not overweight (Dishman, 1981; Treasure, Lox, & Lawton, 1998). In today's society, our body image or the way in which we view our body, and the mental representation we have of it, can for some, form an integral part of their self-concept and overall self-worth (Harter, 1990). Even children as young as eleven years of age gauge themselves on an array of appearance factors and have an informed opinion of whether or not they are attractive (Fox, 1997). Features including height, hair, and fatness are becoming increasingly emotive subjects among children (Page & Fox, 1997). Therefore, it is not surprising that given the importance of physical appearance; SPA has been found to be one major contributing factor believed to be associated with maladaptive exercise experiences and poor compliance rates (Hart, Leary, & Rejeski, 1989; Leary, 1992, 1995; McAuley, Bane, Rudolph, & Lox, 1995; Spink, 1992).

Conceptually, social physique anxiety is a subtype of social anxiety that refers to the affective consequences associated with individuals' doubts about their ability to create the desired impression on others in certain social settings (Hart, Leary & Rejeski, 1989; Leary, 1995; Schlenker & Leary, 1983). According to this approach,

some individuals are consistently more socially anxious than others (Leary & Atherton, 1986). This is likely to be a result of the importance that is placed on making desired impressions on others or may be due to the perceived inability to make those impressions (Leary, 1983; Schlenker & Leary, 1982, 1985).

Social anxiety and subsequent avoidance behaviours are therefore the result of two cognitive components. Firstly, the desire to make a particular impression in an interpersonal situation (e.g., to be seen as attractive, physically competent), and secondly, lowered self-presentational efficacy or the belief that one is not capable of making the desired impression (Maddux, Norton, & Leary, 1988; Schlenker & Leary 1982).

The construct of SPA has been conceptualised as a dispositional tendency to become apprehensive about having one's body evaluated in real or imagined social contexts (Hart et al., 1989; Leary & Kowalski, 1990; Schlenker & Leary, 1982). As individuals are arguably motivated to make positive impressions on others (Schlenker & Leary, 1992), it seems feasible to suggest that if important aspects of the self such as the physique come under scrutiny from others, then avoidance of evaluative situations is likely if one doubts the favourability of those impressions.

Therefore, individuals adopting this protective strategy are unlikely to acquire the potential positive physical and mental health benefits associated with regular exercise (see Biddle & Mutrie, 2001 for a review). Furthermore, the anxiety experienced by many may also be a vital factor that precipitates exercise withdrawal. However, this maladaptive behavioural strategy would only serve to provide a

temporary mechanism that deflects the implications of an unfavourable impression (Hermann, Leonardelli, & Arkin, 2002) and relief from negative affect. As a consequence of the importance of physique anxiety as a motivational deterrent in sport and exercise settings (Eklund, 1998) an appropriate measure was developed.

The Measurement of Social Physique Anxiety

The SPAS was originally developed by Hart, Leary, and Rejeski (1989) in order to assess individuals' concerns about *others perceptions* of their physiques. These negative perceptions were said to deter individuals from participating in exercise programs. As a consequence of the likelihood of SPA holding important implications for understanding sport and exercise behaviour (Eklund, 1998), the development of a valid and reliable instrument with which to measure this construct was required.

In order to develop the SPAS (Hart et al., 1989), the authors undertook three processes. The first of these processes involved the pooling of 30 items that specifically referred to self-reported anxiety or comfort (the opposite) in response to others evaluations of one's physique. Consequently, several experts in the field of body movement, psychology, and exercise science reviewed the items. The content validity and face validity of the items were judged and subsequently 22 of the 30 items were retained. The 22 items were further administered to 195 students (females = 97, males = 98) enrolled in health and fitness courses. The participants were asked to rate the degree to which each of the items were characteristic or true of them and to indicate their responses on a 5-point Likert-type scale (1 = Strongly Disagree, 5 = Strongly Agree). Principal components analysis (PCA) revealed a single principal component with 14 of the 22 items loading greater than 0.60. Three of the fourteen

items were subsequently removed due to redundant content and 1 further item was added. The results of this exploratory analysis resulted in the 12-item uni-dimensional structure of the SPAS.

During the second process, the 12-item SPAS was further distributed to 89 participants (female=46, male=43). Cronbach's alpha coefficient indicated high inter-item reliability (.90) while test re-test reliability (eight weeks) was found to be .82. Furthermore, construct validity was examined during a 2nd study (93 females, 94 males) with the main results revealing high correlations with measures relevant to weight and general physical attractiveness.

The final process in the development of the SPAS involved a 3rd study (56 females) that reviewed its criterion-related validity. Results revealed that high SPA women were significantly more stressed and reported more frequent negative thoughts about physical appearance during physique evaluations than those low in SPA. Therefore, in addition to SPA being conceptualised as a *dispositional* tendency, these results provide support that scores on SPAS might further be related to state physique anxiety (Hart et al., 1989). As a result, subsequent studies (e.g., Crawford & Eklund, 1994; Eklund & Crawford, 1994; Lantz, 1991; Lantz, Hardy, & Ainsworth, 1991; McAuley & Burman, 1993) recognised the viability of the SPAS while also recognising potential problems with its validity.

For example, recent studies using the SPAS have found problems with particular reference to one single item, item 2. This item ("I never worry about wearing clothes that might make me look too thin or overweight") has consistently

emerged in the literature as being problematic (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Lantz, 1991; Lantz, Hardy, & Ainsworth, 1991; McAuley & Burman, 1993). Results have suggested response inconsistency due to the awkwardness of the wording of item 2 and a lack of item relevance for certain populations such as adolescent gymnasts (McAuley & Burman, 1993). Arguably, item 2 appears to reflect a construct concerning clothing attire rather than specific concerns about the physique. However, this has not deterred authors (e.g., McAuley & Burman, 1993) from including this item in further analyses.

In addition to troublesome item 2 and perhaps more importantly, have been concerns regarding the factorial validity of the SPAS. Although the SPAS was originally developed as a uni-dimensional measure (Hart et al., 1989), reports have suggested that the factor structure of the 12-item SPAS may be multidimensional (Eklund, Mack, & Hart, 1996). Indeed, the study by McAuley and Burman (1993) was one of the few that employed confirmatory factor analysis (CFA) in order to determine the veracity of the single factor structure as proposed by Hart et al. (1989). However, although the authors speculated that the results of their CFA produced less than optimal fit indexes, they concluded that this may be due to there being more than one first-order factor. However, their study did not directly address this contention and the authors concluded that "...the SPAS is a uni-dimensional construct and internally consistent" (p. 1051).

Specifically, McAuley and Burman (1993) examined two uni-dimensional SPAS models. The first model included all 12 items, while the second model was an 11-item model with item 2 having been removed. According to the authors, the results of their CFA revealed that the 12-item model produced a goodness of fit index (GFI) of .87 (root mean residual square; RMSR = 0.057) while a reasonable fit was produced for the 11-item model (GFI = .88, RMSR = 0.053). However, according to

the guidelines of Bentler (1990), neither of these models exceeded the required GFI .90 criterion indicating inadequacy of the hypothesised models. However, the application of a .90 criterion may be inadequate under certain conditions (for a review see Hu & Bentler, 1995) suggesting the results of the aforementioned fit indices should be treated with caution.

Although McAuley and Burman (1993) acknowledged that the GFI for the 11-item model needed improvement, it was further research that initiated exploration of a second order SPAS factor. For example, firstly, Eklund et al. (1996) employed CFA in order to test the fit of 12-item and 11-item (item 2 removed) uni-dimensional models. Secondly, a two-factor model of social physique anxiety based on unpublished reports (see McAuley & Burman, 1993) was tested. The first factor represented the construct of *physique presentation comfort* and the second factor represented *expectations of negative physique* evaluation. Lastly, a two-factor model (as speculated by McAuley & Burman, 1993) was evaluated.

Results of the uni-dimensional 12-item model revealed a GFI of .81 (RMSR = .069) in the first sample and a GFI of .79 (RMSR = .066) in the second sample. The 11-item uni-dimensional model revealed a GFI of .81, (RMSR = .072) in sample (A) and a GFI = .80 (RMSR = .068) in sample (B). Furthermore, the authors suggested an increasingly better fit with increased model complexity. As a result of the three competing models, the two-factor model provided the best fit for the data (GFI = .94). This model (physique presentation comfort, expectations negative physical evaluation) was further supported in subsequent research and found to be invariant across gender (Eklund, Kelly, & Wilson, 1997; Petrie, Diehl, Rogers, Johnson, 1996). Specifically, results of Petrie et al. (1996) revealed a CFI of .94 (RMSR = .05) for females and a CFI of .94 (RMSR = .054) for males. While the results of Eklund et al., (1997) revealed a CFI of .91 (RMSR = .057) for males.

Although empirical findings support the two-factor model, further research has questioned this as a valid solution to the SPAS (Eklund, 1998; Eklund, Mack, & Hart, 1996; Martin, Rejeski, Leary, McAuley, & Bane, 1997; Motl & Conroy, 2000). For example, the two factors have been suggested to represent error variance as opposed to true score variance. This is because the positively worded items all load on one factor while the negatively worded items all load on the second factor (Motl & Conroy, 2000).

However, further research has attempted to improve the factorial validity of the SPAS purely through modification of the number of items rather than testing the fit of various models to a 12-item scale (Martin, Rejeski, Leary, McAuley, & Bane, 1997; McAuley & Burman, 1993). For example, Martin et al., (1997) generated a 9-item (removal of items 1, *I am comfortable with the appearance of my physique/figure*; item 2, *I would never worry about clothing that might make me look too thin or overweight*, and item 5, *when I look in the mirror I feel good about my physique/figure*), one-factor solution to the SPAS with a recommendation that other researchers begin to utilise the 9-item version. This recommendation was based on conceptual and statistical arguments.

In the first instance, the removal of item 2 was based on consistent reports of confusion among respondents regarding this negatively worded item. Secondly, items 1 and 5 correlated highly with body satisfaction items. According to Martin et al., (1997) the construct of body satisfaction is a conceptually distinct construct from that of social physique anxiety, as it does not necessarily possess a socially evaluative component. As a result, CFA on the hypothesised 9-item one factor structure revealed adequate GFI on four separate samples of women (sample 1, GFI = .91; sample 2, GFI = .87; sample 3, GFI = .91; sample 4, GFI = .91). However, according to Martin

et al., (1997), the model for sample 2 produced a relatively low GFI. This would suggest that the data might better fit an alternative factor structure (Martin et al., 1997).

Therefore, in addition to the 9-item one factor model, a further CFA examining the fit of a correlated two-factor model (as proposed by Eklund et al., 1996) was run (Martin et al., 1997). CFA for this latter model revealed small improvements in the fit of the data (from GFI = .87 to GFI = .92). However, no statistical difference was found between the uni-dimensional model and the two-factor model ($\chi^2 (26) = 24.04, p > .20$). Further analyses prompted the authors to conclude that the "...more complex two-factor SPA model is no more parsimonious and is less conceptually clear than a nine-item single-factor model of social physique anxiety" (p.364).

In addition to testing the aforementioned nine-item single-factor model, a most recent study by Motl & Conroy (2000) examined several other issues regarding the SPAS. These included, firstly, the examination of the two-factor 12-item SPAS in order to establish whether the measure reflected positively and negatively worded items and secondly, a test of the nine-item uni-dimensional model. Results of the study revealed that the two-factor model was found to be a methodological artifact of response styles associated with positively and negatively worded items. Marsh (1996) has suggested that this may be due to method effects, which are primarily found to be associated with the wording of negatively worded items. Results of the CFA of the nine-item model revealed an adequate fit to the data ($\chi^2/df = 3.56, GFI = 0.94$). However, results of the model did not fit the data as well as the two-factor model (GFI = .84, GFI = .93, respectively).

Therefore, in order to further improve the fit of the nine-item model, two further items were removed. The first item, item 11 (*I usually feel relaxed when it is obvious that others are looking at my physique*) appeared redundant with item 8 (*I am comfortable with how fit my body appears to others*), while item 12 (*When in a bathing suit, I often feel nervous about the shape of my body*) was deemed more relevant among women than men. Subsequent removal of these two items resulted in CFA of the seven-factor uni-dimensional model (including items 3, 4, 6, 7, 8, 9, and 10). Results revealed stronger evidence of factorial invariance between genders ($\chi^2/df = 1.5$, GFI = 0.98) than the nine-item model suggested by Martin and colleagues.

As a consequence of the seven-item, uni-dimensional SPAS model (Motl & Conroy, 2000), Motl and Conroy (2001) further tested its cross-validity across three samples of women and one sample of men. Results of the CFA indicated acceptable fit across all four samples (sample A, GFI = .93; RMSEA = .10, sample B, GFI = .96, RMSEA = .09; sample C, GFI = .93, RMSEA = .11; sample D, GFI = .94, RMSEA = .10). Consequently, the authors suggested, “Researchers can confidently employ the seven-item SPAS in studies of social physique anxiety among female and male teenagers, and young adults” (p. 92).

It is evident from the extant literature that the validity of the SPAS has caused much interest and divergence of results (see Table 1 below for a summary). The majority of the research has examined the construct employing a 12-item, uni-dimensional measure of anxiety related to the perceived negative evaluation of one's physique by others. While the factorial validity of the SPAS has been scrutinised it is still not well established. However, further examination of the factorial validity of the measure is of particular importance because in order to better understand SPA, a structurally valid and stable measure is required. Consequently, various studies have

used several variations of the original instrument (e.g., Hart et al., 1989) designed to assess physique anxiousness among exercisers.

Table 1. Confirmatory Factor Analysis and the Social Physique Anxiety Scale

		12-item SPAS	11-item SPAS	9-item SPAS	7-item SPAS
Eklund et al.	1996	GFI=.81	GFI=.80		
Martin et al.	1997			GFI=.91,.87,.91,.91	
McAuley & Burman	1993	GFI=.87	GFI=.88		
Motl & Conroy	2000			GFI=.94	GFI=.98
Motl & Conroy	2001				GFI=.93
					GFI=.96
					GFI=.93
					GFI=.94
Two-Factor Higher-Order SPAS (Physique Presentation Comfort, Expectations Negative Physical Evaluation)					
Eklund et al.	1996		GFI=.94		
Eklund et al.	1997		CFI=.91		
Petrie et al.	1996		CFI=.94		

Empirical research investigating the construct of social physique anxiety in exercise settings has revealed some illustrative findings. For example, one study by Crawford and Eklund (1994) highlighted SPA as related to state physique anxiety (Hart et al., 1989). The authors demonstrated that those participants with higher levels of SPA preferred to exercise in settings that de-emphasised the physique than those participants with lower levels of SPA. In contrast, those exercisers with lower levels of SPA, preferred settings in which the physique was emphasised by clothing. An additional study using a sample of overweight female participants revealed that the main reason for avoiding exercise in social environments was due to anxiousness

about being evaluated by others (Bain, Wilson, & Chaikind, 1989). Furthermore, a more recent study by Katula, McAuley, Mihalko, and Bane (1998) explored firstly whether exercise environments of differing evaluative potential influenced participants' exercise efficacy. Secondly, whether physical efficacy and SPA contributed to efficacy expectations. Results of the study revealed that those females who exercised in the presence of full-length mirrors (high evaluation potential) had lower levels of exercise efficacy than did male participants. Results further revealed that both perceived physical ability (an assessment of overall physical capabilities) and SPA were significant predictors of exercise efficacy.

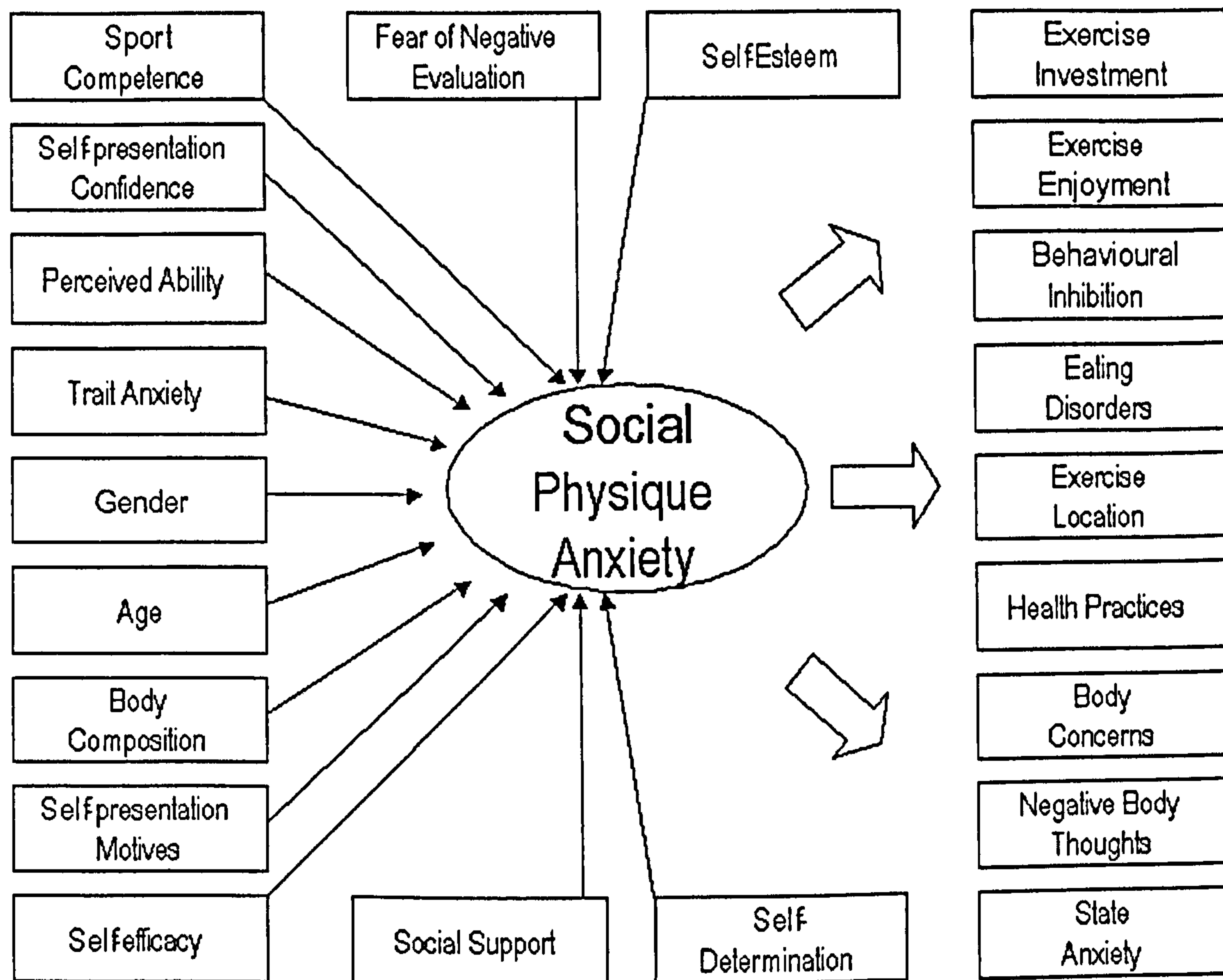
The results of this latter study demonstrated that as SPA among female's increases, levels of confidence in personal abilities to exercise decrease. This would suggest that exercise environments have the potential to decrease exercisers' efficacy through the use of mirrors, which heightens self-awareness and evaluation resulting in SPA and potential withdrawal from exercise settings. A study by Willow and Mihalko (2000) further clarified that SPA predicted negative affective responses during acute resistance exercise performed in front of full length mirrors. Overall, with mirrors being a common feature of health and leisure club settings, avoidance of areas promoting heightened self-awareness in conjunction with low efficacy may lead to a lack of potential health promoting activities among those individuals who experience SPA.

The research thus far provides support for the debilitating psychological effects associated with this form of negative affect. Specifically, those individuals with high levels of SPA are more likely to avoid situations in which others' can

observe the physique in contrast to those with lower levels of SPA. For example, Eklund and Crawford (1994) revealed that SPA was negatively associated with the favourability of attitudes toward a video presentation of an aerobic dance class featuring exercisers dressed in revealing dance attire. Further studies have revealed an association between SPA and low levels of physical activity (McAuley, Bane, Rudolph, & Lox, 1995; Finkenberger, DiNucci, McCune, Chenete, & McCoy, 1998), high percentage body fat (Bain, Wilson, & Chaikind, 1989; Crawford & Eklund, 1994; Focht & Hausenblas, 2001; Hart et al., 1989; Ransdell, Wells, Manore, Swan, & Corbin, 1998), self-reported stress (Hart et al., 1989) the choice of public versus private exercise settings (Lox, Osborn, & Pellett, 1998; Spink, 1992), a high waist to hip ratio (Crawford & Eklund, 1994), eating disordered symptoms (Petrie, 1998), and lower perceived physical ability, and physical self-presentational confidence (Katula, McAuley, Mihalko, & Bane, 1998; see Figure 1 below).

Overall, the results from the extant literature examining SPA have emphasised the importance of this form of negative affect in impeding individuals' adoption or maintenance of potentially healthy fitness regimes. Furthermore, it would seem that the intensity and direction of SPA differs as a function of gender with females being more likely to experience this form of negative affect than males. With considerable research suggesting a trend over the past 30 years towards thinness being associated with female attractiveness (see Davis, 1997) and less emphasis being projected towards the study of men and body image, this has likely contributed to dissatisfaction found among women and their body shape (Probast & Lieberman, 1992).

Figure 1. The Correlates and Consequences of Social Physique Anxiety



Collectively, the research on SPA has used several variations of the original instrument (Hart et al., 1989) designed to assess physique anxiousness among exercisers. However, although the previous research has identified the correlates and consequences of SPA, there still remains a lack of conceptual focus that is vital in order to apply appropriate intervention strategies. One theoretical framework that has played a major role in the advancement of both exercise initiation and adherence and that demonstrates some insight in explaining varying levels of motivation and negative affect is self-efficacy theory (McAuley & Courneya, 1992; McAuley, Pena, & Jerome, 2001; McAuley, Wraith, & Duncan, 1991).

Theoretical Frameworks for Understanding Exercise Motivation: Self-efficacy

One of the most frequently identified psychosocial determinants of adherence to physical activity is an individual's perceptions of personal capabilities, or self-efficacy (Bandura, 1986, 1995, 1997). Self-efficacy encompasses beliefs regarding individuals' capabilities to produce performances that will lead to anticipated outcomes (Bandura, 1997). This theory is drawn from a social cognitive approach to motivation, which is built around expectancies and values that individuals attach to different goals and achievement activities. Originally, this framework proposed that two cognitions concerning mastery were important (Bandura, 1986). Firstly, self-efficacy expectancy; the belief that one is or is not capable of performing the desired behaviour which is viewed as likely to lead to certain outcomes and secondly, outcome expectancy; the expectation that the behaviour will or will not produce a particular result. The key phrase here is 'capable of performing the desired behaviour' since Bandura states the importance of differentiating between efficacy expectations and outcome expectations.

Although Bandura has referred to the two expectancies as being distinct from one another, they are both part of the self-confidence concept within physical activity and exercise settings (Biddle & Mutrie, 2001). For example, efficacy expectations might include the belief that one can successfully adhere to an exercise class 3 times a week over a period of 3 months. However, outcome expectations might refer to whether one believes that this behaviour will produce the desired weight loss at the end of the 3 months. In short, self-efficacy beliefs are theorised to influence exercise participation through its influence on motivation, affect, and behaviour (Bandura, 1986, 1987). Specifically, self-efficacy theory proposes that *maladaptive* emotions

and behaviours are mediated primarily by individuals' expectations of mastery in perceived problematic situations such as mastering the coordination in an exercise class. In this way, self-efficacy is rather a judgement about what individuals perceive *can be done* with their skills (Bandura, 1986) as opposed to being directly concerned with the skills or abilities they possess. Self- efficacy influences how individuals think, feel, and act (Bandura, 1990). Therefore, if self-efficacy has the potential to explain an individual's exercise behaviour and affective responses, this theoretical approach may allow us to establish a better understanding of SPA.

This theoretical approach when applied to exercise settings would suggest that exercise involvement will likely be influenced by individuals' perceived confidence in their personal capabilities to perform the exercise behaviour (Bandura, 1977, 1997). This belief will then be likely to produce the desired outcome. In this way, some individuals who wish to embark upon an exercise regime may further lack confidence in their ability to successfully master the exercise at hand. However, perceptions of personal efficacy are primarily influenced by past-performance accomplishments or mastery experiences (Bandura, 1977, 1986, 1997). Therefore, beginner exercisers with little or no past exercise experience will be more likely to experience initiation problems due to a lack of self-efficacy. However, motivating individuals to engage in regular physical exercise depends on several factors, one of which includes optimistic self-beliefs about being able to perform the behaviour appropriately. As a consequence, those individuals with high self-efficacy for accomplishing a task are likely to participate more readily, work harder, persist longer when encountering

difficulties, and achieve at higher levels compared to those individuals who doubt their capabilities (Bandura, 1997).

Furthermore, research suggests that self-efficacy and outcome expectations are instrumental in determining the degree that individuals experience social anxiety (Leary & Atherton, 1986). Therefore, when applied to exercise settings, exercisers who are driven by self-presentational concerns and question their personal capabilities to self-present an appropriate image in the desired way may have higher levels of social physique anxiety than those exercisers with a higher sense of self-efficacy (McAuley & Burman, 1993). For example, SPA has been found to be inversely related with perceived physical ability and self-presentational confidence among gymnasts (McAuley, Bain, Mihalko, 1995; McAuley & Burman, 1993). Therefore, if research suggests that SPA is related to evaluative concerns and exercise withdrawal among many individuals, it may be that these individuals indeed lack self-efficacy to persist at the task at hand.

Self-Efficacy and Exercise Motivation

A steadily mounting body of evidence suggests that perceptions of self-efficacy have been found to be a major instigating force in forming intentions to exercise and in maintaining the behaviour over an extended period of time (Weiss, Wiese, & Klint, 1989; Wurtele & Maddux, 1987; Dzewaltowski et al., 1990; Feltz & Riessinger, 1990; McAuley, 1992, 1993; McAuley, Bane, & Mihalko, 1995; McAuley et al., 2001). For example, Dzewaltowski (1989) found that individuals, who were more confident that they could continue their participation in an exercise program despite perceived barriers, exercised more days per week than those who were not as

confident. Similarly, McAuley and Rowney (1990) revealed a significant relationship between self-efficacy and frequency of exercise among a group of adult females. Specifically, those who were more efficacious exercised more frequently than those who were less efficacious. A further study by McAuley, Bane et al., (1995) explored the effects of exercise participation on self-efficacy among a sample of middle-aged males and females. Results of the study revealed that participants' exposure to an extended exercise programme produced greater gains in efficacy than did acute bouts of sub maximal graded exercise testing. Furthermore, males were more efficacious than females, although significant multivariate effects were only experienced with respect to cycling. However, due to the lack of significant findings this was not a debilitating factor.

Efficacy cognitions in exercise participants have been found to be more potent in circumstances where physical activity was perceived as challenging, particularly in the initial stages of adoption (McAuley, 1992), during long-term maintenance of the activity (McAuley, Lox, & Duncan, 1993) and among older sedentary adults (McAuley, Katula, Blissmer, Duncan, Pena, & Dunn, 1999). Further studies have linked efficacy cognitions to changes in levels of intensity of an activity (Sallis, Haskell, Fortnam, Vranizan, Taylor & Solomon, 1986). For example, Poag and McAuley (1992) revealed that among a group of adult females attending conditioning classes, those individuals with higher levels of self-efficacy were more likely to perceive higher levels of perceived exertion for overcoming barriers than those with lower levels of self-efficacy. As a result, it would seem feasible to suggest that physique anxious individuals are more likely to withdraw from exercise settings if having low levels of self-efficacy. In contrast, for those individuals with lower levels

of SPA, higher levels of self-efficacy may contribute to exercise persistence. For example, it is likely that personal confidence to achieve optimal self-presentation will not deter individuals from exercise regimes when low in SPA (McAuley & Burman, 1993).

In addition, further studies have demonstrated that acute and long-term exposure to physical activity can have an effect on self-efficacy relative to physical performance measures. For example, McAuley, Courneya, and Lettunich (1991), found that self-efficacy increased as a function of acute exercise involvement. In turn, the more efficacious individuals are, the more likely they will be to report positive well-being, revitalisation, and less psychological distress during and following an exercise regime (Bozoian, Rejeski, & McAuley, 1994; Gauvin & Rejeski, 1993; McAuley, Shaffer, & Rudolph, 1995; Rejeski, Gauvin, Hobson, & Norris, 1995).

For example, Mihalko, McAuley, and Bane (1996) revealed that acute exercise sessions accounted for significant increases in positive well-being among a sample of middle-aged participants. While a recent study by McAuley, Talbot, and Martinez (1999), manipulated two conditions pertaining to high efficacious exercisers and low efficacious exercisers. Individuals were given bogus feedback relative to exercise performance. Those participants in the high efficacious condition were informed that their physical performance placed them in the top 20th percentile for fitness among similar aged college students. In contrast, those participants in the low efficacious conditions were informed that their physical performance placed them in the bottom 20th percentile among similar aged students.

Results of the study revealed that efficacy could be successfully manipulated leading to different affective responses during and after acute exercise bouts. Specifically, the high efficacy participants reported more positive well-being and less psychological distress during and after exercise than those individuals in the low efficacy condition. The results of this study suggest that providing feedback that is relevant to participants' personal accomplishments serves as a reliable source of efficacy information (Bandura, 1997; McAuley et al., 1999). Furthermore, this may serve as a useful intervention strategy for those individuals who lack confidence due to physique related concerns. Specifically, a focus on personal improvement may serve to detract from physique related concerns and thus may serve to reduce anxiety levels. Therefore, self-efficacy appears to be one important construct that may help researchers' understanding of SPA.

In addition to the manipulation of self-efficacy, research has further identified that the importance one places on an outcome, such as level of fitness, predicts behavioural intent and adds to the predictive utility of self-efficacy expectancy / outcome expectancy (Maddux, Norton, & Stoltenberg, 1986; Sonstroem, Harlow, & Josephs, 1994). This would suggest that although higher levels of self-efficacy often result in prolonged effort and perseverance which are arguably prerequisites to successful outcomes and continuing exercise adherence in the event of perceived environmental challenges (McAuley, 1992), self-efficacy might be better understood in conjunction with other important mediating variables. For example, one study by McAuley et al. (1995) attempted to integrate social cognitive and impression management perspectives in conjunction with exercise anxiety. Amongst other things the authors were interested in whether participants (male and female middle-aged

adults) changes in body composition and circumferences, initial outcome expectations, and changes in self-efficacy contributed to changes in physique anxiety over the course of the programme.

Results of the study revealed that both physiological and cognitive variables accounted for 50% of the variation in physique anxiety reduction. Specifically, reductions in hip size were a significant predictor of reduced physique anxiety among females. Those individual's who perceived positive expectations regarding the health and fitness benefits associated with exercise, and greater increases in self-efficacy during the exercise programme, displayed significantly reduced physique anxiety over time. These results demonstrate that personal improvements in perceptions of efficacy can lead to reductions in anxiety concerning impression management such as physique anxiousness (McAuley et al., 1995). Although self-efficacy has the potential to enhance an individuals exercise involvement and reduce levels of anxiety, many who embark upon an exercise regime still experience little positive affect to the point where they discontinue their exercise regime. Therefore, self-efficacy integrated with impression management or self-presentational theoretical perspectives may provide additional insight into the psychological processes influencing SPA.

Self-Presentation Theoretical Framework

Exercise psychologists have identified the importance of investigating the correlates and consequences of SPA using a self-presentation perspective (e.g., Hart, Leary, & Rejeski, 1989; Leary, 1992, 1995; McAuley, Bane, Rudolph, & Lox, 1995). Specifically, when individuals doubt their ability to create a desired impression, important aspects of self-identity become threatened resulting in anxiety and exercise

withdrawal (Leary, 1995). In addition, both self-presentation and self-efficacy perspectives have revealed additional insight into the antecedents of SPA (Hart et al., 1989; McAuley et al., 1995). Specifically, if self-efficacy is considered to be a coping strategy used among physique anxious exercisers, this can be used to alleviate potential negative affect. This approach appears to hold both explanatory and pragmatic appeal in understanding and predicting SPA.

However, although self-efficacy and self-presentation theoretical perspectives are beginning to identify the motivational antecedents leading to SPA in exercise settings, they still do not fully explain the psychological processes underpinning SPA. In order to identify the conceptual processes underpinning SPA, it is necessary to investigate anxiety in the context of contemporary perspectives on motivation.

Anxiety

Although SPA has been conceptualised as a dispositional tendency (Hart et al., 1989), this construct has been found to interact with social contexts to influence attitudes toward exercise settings (Crawford & Eklund, 1994), increase anxiety during actual evaluation (Hart et al., 1989), and decrease confidence in ability to exercise (Katula et al., 1998). This would suggest that scores on the SPAS are related to state physique anxiety. Therefore, not only is SPA an enduring characteristic (McAuley et al., 1995) but also would appear to be a function of individuals' perceptions of the situation. Consequently, anxiety as a state response might be better understood as a function of an individuals cognitive appraisal process (Lazarus, 1999).

Recent research within the sport literature has identified the importance of individuals' cognitive appraisal process as underlying anxiety in sport settings (e.g., Hall & Kerr, 1997; Hall, Kerr, & Matthews, 1998; Hammermeister & Burton, 2001; Jones, Swain, & Cale, 1990, 1991; Swain & Jones, 1992). For example, a study by Hall et al. (1998) revealed that the cognitive dimensions of competitive state anxiety amongst high school athletes were underpinned by motivational constructs such as perfectionism and perceptions of ability. Therefore it is viable that this approach will be useful in enhancing our understanding of negative affect, specifically social physique anxiety, within exercise domains.

Specifically, by adopting the tenets of Lazarus (1999), individuals' negative affective responses to specific situations can be said to be a result of a complex interaction of four types of appraisal. These include, the appraisal of the pending demands of the situation, the personal resources available to cope with those demands, the potential personal impact of failure to meet those demands, and the personal meaning assigned to that outcome. Within this theoretical formulation, these appraisals are said to converge to shape the meaning of each situation to the individual (Folkman, 1984).

The personal meaning construed by the individual about what is happening within a specific situation is deemed crucial to the arousal of anxiety (Lazarus, 1999). Consequently, the complex interactions of this appraisal process will determine whether or not threat is perceived and as a result variations in levels of anxiety will be experienced accordingly. In this way, Lazarus' (1991) comprehensive stress model is

likely to provide a viable conceptual framework for understanding the antecedents of SPA in exercise settings.

According to Lazarus' (1991) theoretical approach, stress can be defined as a transactional relationship between individuals and the environment. For a negative emotional response to be evoked (e.g., anxiety), the environmental demands must be appraised as exceeding the individuals perceived personal capabilities. If the individual's expectations of impending environmental demands lead them to conclude that their self-worth may be undermined, anxiety is likely to be experienced (Lazarus, 1966; Lazarus & Folkman, 1984, 1987). Consequently, anxiety could be said to be a result of a complex interaction of cognitive evaluations (Lazarus, 1991). However, according to Lazarus' theoretical approach, this evaluative process includes the interactions of three key components, primary appraisal, secondary appraisal, and perceived coping resources.

Appraisal Process

Primary appraisal is said to be a function of an initial assessment made by an individual about a specific transaction in which the personal significance of the encounter is evaluated (Folkman, 1992). The fundamental question that is being asked in the primary appraisal process is whether or not the individual's well-being is at stake. In order to arrive at some conclusion (i.e., the cognitive evaluation), the individual must first partake in three primary appraisal processes (Lazarus, 1999).

The first appraisal, *challenge*, refers to an assessment of the situation as being an opportunity for growth or mastery. For example, some individuals will perceive

that something may be learned from the situation at hand (Lazarus, 1999). The second, *threat*, refers to the potential for harm or loss such as a situation in which one has nothing to gain and potentially everything to lose such as self-esteem, while the third appraisal, *harm/loss* (stressful appraisal), refers to a loss that has already occurred such as loss of self-worth in a personally important situation such as an exercise environment in which to be perceived as fit is important but was not achieved. If the individual's assessment of the transaction results in perceptions of challenge or threat, a positive or negative emotional response will ensue. However, although appraisals of challenge and threat can be differentiated from one another in terms of their cognitive component (i.e., the potential for mastery or the potential for harm/loss) and affective component, both of these appraisals can occur at the same time (Lazarus, 1999) during the anticipatory stage of a stressful event.

In addition, Lazarus suggests that primary appraisal is further influenced by three constructs: (a) the extent to which the encounter impacts valued personal goals such as to maintain an ideal level of physical fitness, (b) personal identity that is at stake such as being perceived as fit and healthy or potential threats to personal meaning, and (c) the extent to which the transaction aids or impairs personal goal attainment. Thus the components of primary appraisal are postulated to impact the cognitive evaluation of the transactional encounter and initiate positive or negative emotional responses (Lazarus, 1999). In this way, physique anxious exercisers who perceive the exercise domain as important, first need to appraise the exercise setting as threatening one's self-worth before anxiety is experienced. Thereafter, the secondary appraisal that normally occurs temporally following the primary appraisal is the cognitive evaluation about how the individual can manage the situation.

Therefore, once the individual has determined what is at stake during the transaction, they will next focus on how to manage their situation.

The secondary appraisal process specifically focuses on the individuals' assessment of their personal resources to cope with the situation / transaction at hand (Folkman, 1992). If perceptions of personal resources allow the individual to prevent potential personal harm and thus improve the likelihood of gaining from the transaction then perceived control and challenge is more likely. According to Lazarus' (1999) theoretical formulation, perceptions of challenge usually occur among those individuals who would rather tackle the situation at hand in order to gain mastery and personal growth from their efforts. When individuals appraise certain transactions as having the potential for control and the transaction is deemed relevant to well-being, challenge is more likely.

However, in contrast, if individuals perceive they lack the necessary resources to effectively manage the situation and this is deemed likely to impact their self-worth, perceptions of threat is likely to result. As a result, those who perceive they possess the necessary resources to cope with the situation will perceive it as challenging and therefore be more likely to persist in their behavioural investment. In contrast, it may be that physique anxious exercisers who perceive they lack the necessary coping resources will perceive threat to their self-worth and will therefore be more likely to abstain from exercise. In this way, adopting Lazarus' approach contributes to a clearer understanding of motivational differences among physique anxious individuals.

Indeed, the perception of threat has been identified as a key construct in theories of competitive anxiety (Endler, 1978; Vealey, 1990). Furthermore, research within the sport literature, suggests that the primary appraisal of threat is most directly related to competitive anxiety in sport (e.g., Gould, Horn, & Spreeman, 1983; Jones & Hanton, 1996; Jones, Swain, & Cale, 1990; Lewthwaite & Scanlan, 1989; Passer, 1983). The main sources of threat have been identified as fear of failure or fear of evaluation (Passer, 1983), social evaluation, and external control or guilt (Gould, Horn, & Spreeman, 1983). For example, among a sample of male and female team sport athletes, cognitive anxiety was found to be associated with personal goals and standards. For males, the predictors of threat were associated with normative ability and winning (Jones, Swain, & Cale, 1991). A further study revealed that greater frequency of evaluative worries was evident among a sample of high trait-anxious junior high school athletes (Rainey, Conklin, & Rainey, 1987).

The results of these studies suggest that perceived threat, which is a result of individuals' fear of failure or an inability to attain personal goals and/or favourable social comparisons are precursors of state anxiety (Hammermeister & Burton, 2001; Lazarus, 1999; Jones et al., 1990; Passer, 1983), particularly cognitive anxiety (Lazarus, 1991; Lazarus & Folkman, 1984). Therefore, threat can only be fully understood as a result of the complex interaction of Lazarus' appraisal process. Furthermore, researchers who have explored the underpinnings of performance-related anxiety (Roberts, 1986; Stipek, 1996) have indicated that personal meaning plays a pivotal role in the appraisal process. As primary appraisal is said to influence personal meaning (Lazarus, 1999) it would seem feasible to investigate the performance related literature.

Personal Meaning

One individual difference factor that has been identified as being a critical determinant of performance-related cognitions, affect, and behaviour in the sport and exercise domain is the personal meaning of a situation (Roberts, 1986). For example, a growing number of studies has recognised the importance of individual differences in the types of goals held and variations in exercise investment (Duda, & Tappe, 1988; Duda, 1989; Duda, Smart, & Tappe, 1989; Finkenberg, Dinucci, McCune, & McCune, 1994). For example, Duda and Tappe (1988) identified a number of diverse personal incentives in adult exercise contexts including competition, fitness improvement, stress management, and affiliation. These incentives were found to be related to expected future involvement in physical activity settings. An additional study by Tappe, Duda, and Menges-Ehrnwald (1990) revealed that amongst a sample of male and female adolescents, the type of goals held by exercise participants influenced the way that the exercisers processed achievement related information. Specifically, males were found to be higher in perceived competence and exercised primarily for competition and physical enhancement. Females were found to focus more on physical appearance via weight management and stress management. These results suggest that individual's behaviour is a function of differences in the meaning of the situation and that differences in meaning are evident among males and females.

In addition to personal incentives providing meaning for individuals (Tappe et al., 1990) contemporary motivational theorists (Maehr & Braskamp, 1986; Roberts, 1986) have suggested that the personal meaning of a situation may further be a function of individual difference factors such as pre-dispositional variables associated

with motivation. The meanings assigned to the consequences of a situation, derive from the person's belief system that often involves their personal criteria for self-worth (Ellis, 1962; Rogers, 1959). For example, Vealey and Campbell (1988) revealed that those ice skaters that were more concerned about social comparison experienced higher levels of pre-competitive anxiety. While a recent study in the sport domain identified varying dispositional achievement goals as contributing to cognitive anxiety among a sample of junior fencers (Hall & Kerr, 1997). Specifically, ego-orientation (social comparison) was a more consistent predictor of cognitive anxiety than task orientation (focus on personal improvement).

Overall, these studies reveal the importance of personality dispositions in providing the meaning of achievement related information and subsequent variations in cognitions and affective responses (Maehr & Braskamp, 1986; Roberts, 1986) in sport. Furthermore, it is evident that motivational factors are pre-cursors to the onset of cognitive anxiety (Hall & Kerr, 1997; Vealey & Campbell, 1988). Thus, anxiety appears to represent individuals' cognitive interpretation of a situation that is likely to arise due to perceptions of threat to self-worth as individuals interpret the impact of failure. Therefore, if dispositional goal orientations provide meaning in sports contexts then the personality disposition of physique anxiety (Hart et al., 1989) will give meaning to exercisers and give rise to variations in behavioural exercise investment. As suggested by Lazarus (1999), reactions under stress cannot be predicted without referring to personality traits which will account for individual differences in the way individuals react to situations. Specifically, physique anxious exercisers who are likely to become highly concerned about others' evaluations of their physiques in perceived evaluative situations (Hart et al., 1989) may choose to

abstain from such situations. This will preserve self-worth if doubting the favourability of others judgments. However, although SPA is one dispositional tendency providing meaning to exercise contexts, identification of other dispositional motivational constructs will allow a better understanding of the antecedents of SPA. One factor that has received limited attention in the sport and exercise literature that is considered to reflect personal meaning and influence primary appraisal (Lazarus, 1999) is the construct of perfectionism.

Perfectionism

One motivational construct that may have a major influence on individuals' cognitive appraisal process and predispose exercisers to experience negative affect in exercise settings is perfectionism. Recently perfectionism was found to be a motivational construct associated with both adaptive and maladaptive motivational strivings in the clinical, counselling, educational, and achievement literature (Hall, Kerr & Matthew, 1998; Hewitt & Flett, 1991; Frost et al., 1990). Although research is just beginning to investigate its influence in sport domains (e.g., Coen & Ogles, 1993; Frost & Henderson, 1993; Hall, Kerr, & Matthew, 1998), this dispositional variable has only recently been investigated in exercise class contexts (Haase et al., 2002; Hall, Kerr & Wigmore, 2002).

Perfectionism is a personality trait often associated with positive achievement striving and the setting of excessively high personal standards for performance (Burns, 1980; Pacht, 1984). Burns (1980) described perfectionists as individuals whose high standards are beyond reach or reason, who strain unremittingly toward impossible goals, and who measure their own self-worth entirely in terms of

productivity and accomplishment. Any deviation from this rigid performance standard is accompanied by self-criticism and lowered self-esteem. Pacht (1984) suggested that this destructive pursuit of the unattainable keeps perfectionists in a state of turmoil as they appear to be “constantly frustrated by their need to achieve and their failure to do so” (p.387).

Past research pertaining to perfectionism, generally believed that the motivation for perfection was an important influence on human behaviour. Furthermore, the striving for perfection was often seen as an innate aspect of human development (e.g., Adler, 1956). Although the basic definition of perfectionism as the tendency to set extremely high standards has changed little, the overall desirability of perfectionistic strivings has become an area of debate. Although striving to reach personally high challenging goals has been recognised as an adaptive motivational pattern (Duda, 1993), the relentless pursuit of rigid standards towards achieving personal goals may become maladaptive in the long-term.

Perfectionists hold strict performance standards that require either the attainment of an ideal personal standard or a perceived ideal standard set by others. The continual pursuit to meet such exacting standards can become self-defeating. Perfectionists are often plagued by self-doubts about their ability that means their relentless pursuits are never good enough. Furthermore, they often over-generalise failures and engage in all or nothing thinking whereby the only possible outcomes are total success or total failure. The overall perceived failures ultimately have a detrimental impact on the perfectionist’s self-worth (Blatt, 1995). As a result,

attempts have been made to ascertain the beneficial aspects of this construct from the more harmful aspects (Hamachek, 1978; Missildine, 1963).

The Construct of Perfectionism: Normal and Neurotic

The concept of perfectionism was originally defined by Hamachek (1978) who made a clear distinction between its adaptive and maladaptive aspects. Hamachek identified the two aspects as normal and neurotic perfectionism, respectively. Normal perfectionism is characterised by excessively high personal standards, self-criticism, and scrutiny in which there is an inability to accept flaws or failures (Hewitt & Flett, 1990). However, on occasion, normal perfectionism has also been related to sometimes-adaptive behaviour in clinical and educational contexts, and positive achievement striving in sport (Frost & Henderson, 1991). These perfectionists can often recognise their performance limitations and consequently may derive an element of satisfaction from their efforts through allowing less precision in their standards (Flett, Hewitt, Blankenstein, & Mosher, 1991; Frost Martin, Lahart, & Rosenblate 1990).

In contrast, neurotic perfectionism is associated with self-defeating and debilitating over-striving, rigid, self-destructive criteria for personal standards (Hamachek, 1978; Hewitt & Flett, 1991a), and an intense need to avoid failure (Blankenstein, Flett, Hewitt, & Eng, 1993; Flett, Blankenstein, Hewitt, & Koledin, 1992; Flett, Hewitt, Blankenstein, & Mosher, 1991; Hamacheck, 1978). Subsequently, mistakes are not considered as a part of learning but are interpreted as a threat to self-worth (Hewitt & Flett, 1991).

In this way, while perfectionism was originally considered to have a positive effect on individuals' achievement motivation (Hamachek, 1978), more recently it has been seen to be "the practice of demanding of oneself or others a higher quality of performance than is required by the situation" (Hollander, 1978, p. 384). This neurotic and potentially debilitating trait (Hewitt & Flett, 1991) leaves individuals relentlessly in pursuit of the unattainable (Pacht, 1984). Combined with inflexible evaluative criteria, neurotic perfectionism has been found to be associated with maladaptive cognitions and affective responses to achievement outcomes (Hewitt & Flett, 1991).

For example, responses to achievement outcomes have included procrastination, feelings of failure, and low self-esteem (Hewitt & Flett, 1991). In extreme instances, perfectionism has also been associated with psychopathologies such as anxiety (Flett, Hewitt, & Dyck, 1989; Frost & Marten, 1990), depression (Blatt, Quinlan, Pilkonis, & Shea, 1995; Flett, Hewitt, Blankenstein, & Mosher, 1995; Hewitt & Dyck, 1986; Hewitt & Flett, 1990, 1991b; Hewitt & Flett, 1993), neuroticism (Hewitt, Flett, & Blankenstein, 1991), social phobia (Juster, Frost, Heimberg, Holt, Mattia, & Faccenda, 1996; Lundh & Ost, 1996; Saboonchi, Lundh, & Ost, 1999), obsessive-compulsive disorder (Frost & Steketee, 1997), eating disorders (Joiner, Heatherton, Rudd, & Schmidt, 1997), suicide potential (Adkins & Parker, 1996; Dean & Range, 1996), suicidal threat (Hewitt, Flett, & Turnbull-Donovan, 1992; Hewitt, Flett, & Weber, 1994) stress amongst teachers (Flett, Hewitt, & Hallett, 1995), exercise addiction (Coen & Ogles, 1993; Hall, Kerr, & Finnie, 2002) and social physique anxiety (Haase, Prappavesis & Owens, 2002; Hall, Kerr, & Wigmore, 2002). However, advances in our understanding of the effects of this

construct have been limited due to a lack of clear conceptualisation and appropriate measurement technology.

Uni-dimensional Perfectionism

Extant conceptualisations of perfectionism have been uni-dimensional in nature and have focused exclusively on self-directed cognitions (Burns, 1980) with only brief acknowledgements to other dimensions (Hollender, 1965). For example, measures such as the Burns Perfectionism Scale (Burn, 1980) provide only one total perfectionism score that does not capture the breadth of the perfectionism construct. Although self-directed perfectionism is a central component of this construct, Hewitt & Flett (1990, 1991) have argued for the incorporation of interpersonal and social aspects. These aspects may be equally as important towards the contribution of adjustment difficulties (Hewitt & Flett, 1991).

Measures of Multidimensional Perfectionism

Normal and neurotic perfectionism can be derived from the independent conceptualisations of perfectionism developed by Frost et al., (1990) and Hewitt and Flett (1991, 1991b). Frost et al., (1990) conceptualised perfectionism as consisting of five dimensions to which a sixth was later added (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). The first dimension of Personal Standards (PS) refers to the extent that individuals set very high standards that are important for self-evaluation. This dimension has been the one most related to feelings of efficacy and positive affect (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Frost et al., 1990). In contrast, PS was found to be marginally correlated with depression when testing its relationship with a range of psychopathological symptoms (Frost et al., 1990). This reiterates the

importance placed on excessively high standards and the possible consequences of self-evaluation on self-worth if perceiving to fall short of them.

Secondly, the dimension of Concerns over Mistakes (CM) refers to individuals' negative reactions to mistakes that are often interpreted as equivalent to personal failures. This is the dimension that has been found to most reflect maladaptive evaluative concerns (Frost et al., 1990; Frost et al., 1993). Furthermore, this dimension appears to consistently promote maladaptive cognitions, affect, and behaviour in clinical and sport settings. Consequently, CM has received much attention due to its consistent relationship with various forms of psychopathologies (e.g., Frost et al., 1990; 1993).

The third dimension, Parental Expectations (PE) is defined as “the tendency to believe that one's parents set very high goals and are overly self-critical (Frost et al., 1990, p. 453). Although this dimension is not as closely related to psychopathology as the previous dimensions (PS, CM) it may be important in the development of perfectionism. For example, a study by Frost, Lahart, and Rosenblate (1991) revealed that high scores on the PE scale among mothers was found to be associated with increased perfection amongst daughters.

Similarly to PE, Parental Criticism (PC), the fourth dimension, is concerned with individuals' perceptions of the extent to which their parents engage in consistent, often critical evaluation of their child. This is in conjunction with the child's tendency to place considerable value on these evaluations. The main contributors to this area (Barrow & Moore, 1983; Burns, 1980; Hamachek, 1978; Hollender, 1965)

have suggested that this parental connection may be at the core of perfectionism. These theorists have suggested that perfectionism is a consequence of environments in which love and approval were conditional upon performance. Mistakes and failures were therefore perceived as resulting in a loss of parental love and consequently rejection. Therefore, for the perfectionist, a failure to meet parental standards results in a loss of parental acceptance.

Dimension five, organisation and order (O), is an overemphasis on tidiness. “There is a place for everything, and everything must be in its place” (Hollander, 1965, p. 96). While this dimension is not necessarily to do with setting standards, its focus is rather on how the individual goes about meeting those standards. The last dimension, Doubts about Action (DA) is said to reflect the individuals’ doubts about the quality of personal performances. According to Frost et al., (1990), it is this dimension that has been associated with obsessional thoughts. Similarly to CM, DA has consistently revealed relationships with a wide range of symptoms of psychopathology including self-critical depression, suicidal preoccupation, and severe problems with procrastination (Adler & Parker, 1996; Frost, et al., 1990; Frost et al., 1993; Rice, Ashby, & Slaney, 1998).

Overall, it can be seen that the dimensions of PS and the need for order and organisation subscale (O), reflects adaptive achievement striving (e.g., Frost et al. 1993, 1990). Furthermore, they also appear to be synonymous with Hamachek’s (1978) conceptualisation of normal perfectionism. In contrast, the remaining four subscales (CM, PE, PC, DA) appear to reflect maladaptive perfectionism that closely represents the construct of neurotic perfectionism as outlined by Hamachek.

The Inter- and Intra-Personal Aspects of Perfectionism

In addition to the MPS-F perfectionism measure, Hewitt and Flett (1991) conceptualised perfectionism as consisting of three differing dimensions which not only focus on self-criticism but also incorporate interpersonal situations. These aspects of perfectionism may be equally as important towards the contribution of adjustment difficulties as the subscales identified by Frost and colleagues. Furthermore, with exercise contexts usually occurring in social settings (Leary, 1992) it is feasible to suggest that the interpersonal dimension of perfectionism will be an important dimension to explore with regards to understanding the antecedents of social physique anxiety.

Hewitt and Flett's (1991) 45-item multi dimensional perfectionism scale (MPS-H) scale consists of three dimensions. The first dimension, self-oriented perfectionism, involves the setting of unrealistic self-imposed standards, compulsive striving, all-or-none thinking whereby only total successes or total failures exist as outcomes, a focus on personal flaws and past failures, and self-criticism. The second dimension, other-oriented perfectionism, concerns the beliefs and expectations that these individuals have about others capabilities. Other-oriented perfectionists hold unrealistically high standards for significant others which leads them to stringently evaluate others performances (Hewitt & Flett, 1991). This dimension was positively correlated with self-esteem (Hewitt & Flett, 1991) while in contrast being correlated with authoritarianism and hostility toward others (Hewitt & Flett, 1991). The third dimension, socially-prescribed perfectionism, reflects the view that others are

imposing expectations of perfection on oneself. In addition, is the belief that others will only be satisfied when these standards are attained.

Individuals who score highly on the dimension of self-oriented perfectionism are said to set exceptionally high standards (Hewitt & Flett, 1991). In addition, they are said to "...derive a very real sense of pleasure from the labours of a painstaking effort and who feel able to be less precise as the situation permits" (Hamacheck, 1978, p., 27). Self-oriented perfectionists have an intrinsic need for perfection, set exacting goals, and constantly evaluate their performances to attain perfection (Hewitt & Flett, 1991).

Those individuals who score highly on the dimension of other-oriented perfectionism are similar to self-oriented perfectionists. However, the exceptionally high standards set are directed outwards, towards others, as opposed to inwards. This perfectionistic dimension entails placing great importance on the attainment of high standards, while rewarding others only when these standards are met. Expecting high standards from others was found to be related with hostility towards others, authoritarianism, dominating behaviour, and family problems (Hewitt & Flett, 1989, 1991). In contrast to its negative aspect, research has found associations with leadership qualities such as levels of assertiveness (Flett, Hewitt, & DeRosa, 1996). Although important, this dimension of perfectionism was not deemed necessary for the purposes of the present research and therefore will not be mentioned further.

In contrast, those individuals who score highly on the dimension of socially prescribed perfectionism feel a need to attain perceived standards prescribed by

others. Socially prescribed perfectionists believe that these exceptionally high expectations need to be attained in order to experience others approval (Hewitt & Flett, 1991). Furthermore, these perfectionists are likely to experience maladaptive cognitions, affective responses, and behavioural outcomes due to the perceived standards being externally imposed (Hewitt & Flett, 1991; Deci & Ryan, 1985; Ryan, 1982).

In order to develop the multidimensional measure of perfectionism (MPS-H), descriptive passages deemed to reflect the three dimensions (SOP, OOP, SPP) were derived from case study descriptions (Burns & Beck, 1978; Hollender, 1965). These were then distributed to a graduate student and three undergraduate students in order to generate items for agreement. A pool of 162 items reflecting the constructs in question were corrected for clarity and rephrased to ensure half of the items were reversed. A total of 122 items were further administered to students who were asked to rate these items on a 7-point Likert-type scale. Items were retained only if they correlated less than .25 with the Marlow-Crowne Social Desirability Scale (1960). Although the authors (Hewitt & Flett, 1991) provided minimal detail regarding the development of the items, the aforementioned criteria resulted in a 45-item multidimensional measure including three subscales of 15 items each. These distinct but correlated subscales demonstrated adequate test-retest reliability, internal consistency (Hewitt & Flett, 1991) and factorial validity (e.g., Blankenstein, Flett, Hewitt, & Eng, 1993; Flett, Hewitt, Blankenstein, & Dynin, 1994; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991).

An additional study (Hewitt & Flett, 1991) related to the construct validity of the MPS-H scale further revealed self-oriented perfectionism was significantly correlated with high standards, self-criticism, self-blame, and self-importance of goal attainment. The dimension of SPP was found to be significantly correlated with the measures of demand for approval of others, fear of negative evaluation, locus of control, ideal social standards, and social importance of standards. The authors concluded that evidence of the stability of the subscales constituted important evidence that perfectionism is a trait that remains relatively stable over time.

In addition to the testing of the psychometric properties of the MPS-H, a further factor analytic study of both Multidimensional Perfectionism Scales developed by Frost et al., (MPS-F; 1990) and Hewitt and Flett (MPS-H; 1991) revealed two separate factors that correspond to self-imposed standards of perfection and socially imposed standards of perfection (evaluative concerns). A study by Frost, Heimberg, Holt, Mattia, & Neubauer (1993) identified and confirmed two primary factors that they called Positive Achievement Striving and Maladaptive Evaluative Concerns. While the researchers found “a substantial overlap” (p.124) between components of the two measures, selected components from each scale were independent and reflected positive and negative features of the perfectionism construct as originally suggested by Hamacheck (1978).

Firstly, Frost et al.’s Personal Standard scale was found to be associated with Hewitt and Flett’s self-oriented Perfectionism scale (Positive Achievement Striving). This reflects an adaptive emphasis on personal standards and positive achievement striving (Frost et al., 1990). Secondly, dimensions reflecting Maladaptive Evaluative

Concerns were the dimensions of CM, PE, and PC (MPS-F; 1990) that were further found to be independently correlated with the Socially-Prescribed Perfectionism scale (MPS-H; 1991). The central aspect of this feature appears to be evaluative concerns and is more closely associated with psychopathology than SOP (Flett et al, 1991; Hewitt & Flett, 1991). The Total Perfectionism measure was to a lesser extent, found to reflect Other-Oriented perfectionism. This dimension was not characterised in Frost et al.'s theorising of perfectionism but was found to be associated with the dimensions of PS, CM, and PE. Consequently, these findings reveal a substantial overlap between Frost et al.'s Total Perfectionism scale and both the dimension of Hewitt and Flett's SOP and SPP scale.

In addition to the intercorrelations of the MPS-F and MPS-H, the relative association of the two measures with negative affect and depression was also investigated (Frost, Heimberg et al., 1993). These included a general measure of depression severity, the Beck Depression Inventory (BDI; Beck, Ward, Mendleson, Mock & Erbaugh, 1961) and a self-report mood scale; the positive and negative affect scale (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS consists of two dimensions. The first, positive affect (PA) reflects feelings of enthusiasm, activity, and energy, while the negative affect (NA) dimension reflects feelings of fear, anger, and guilt.

Results of this investigation revealed that subscales reflecting the Maladaptive Evaluative Concerns factor (e.g., concerns over mistakes, doubts about the quality of one's action, and concerns of others criticism and evaluation) were most significantly related to negative affect and depression. Specifically, Frosts CM, PC, and DA were

found to be significantly and positively correlated with the BDI and NA scale. While Hewitt and Flett's measure revealed that SPP was significantly and positively correlated with BDI and NA.

In contrast, the sub-scales reflecting the dimension of Positive Achievement Striving (e.g., self-oriented perfectionism and personal standards) were only correlated with positive affect. Specifically, Frosts dimension of PS and O were both positively correlated with PA although this result was not significant. Similarly, the dimension of SOP (MPS-H) was significantly correlated with PA while other-oriented perfectionism was found to be unrelated with any measure of affect.

As a result of these investigations, it would seem that Positive Achievement Striving or normal perfectionism (Hamacheck, 1978) focuses on strengths while Maladaptive Evaluative Concerns or neurotic perfectionism is driven by a fear of failure. Furthermore, Frost, Heimberg and colleagues (1993) surmised, "These findings indicate that the Frost et al., and Hewitt and Flett measures of perfectionism are closely related and should be useful in integrating studies using one or the other of these measures" (p. 18).

In a similar vein to Frost et al.'s theorising, Slade (1982), Slade and Dewey (1986), and Owens and Slade (1987) mirrored the distinction between normal and neurotic perfectionists in their definitions of satisfied (i.e., positive achievement striving) and dissatisfied (i.e., maladaptive evaluative concerns) perfectionists. These sub-scales were originally part of a measure (Setting Conditions for Anorexia Nervosa Scale; SCANS) that stemmed from a model of anorexia nervosa (Slade, 1982) in

which this eating disorder was believed to be facilitated by both strong perfectionistic tendencies and a general dissatisfaction with life. Results of the study classified eating disordered individuals as *dissatisfied* perfectionists. In contrast to the findings of Slade (1982), a subsequent study revealed that a non-clinical group of female marathon runners were found to score highly on perfectionism, but at a normal level (Owens & Slade, 1987). These individuals were therefore classified as *satisfied* perfectionists.

As a result, the authors argued that the existing concepts of perfectionism had failed to consider other important factors in the consequences of perfectionistic behaviour. Specifically, it was the *consequences* that were central to the meaning of perfectionism. From a radical behaviourist perspective, perfectionism was expected to be a function of positive reinforcers / outcomes that might be regarded as a more normal perfectionism than perfectionism associated with the avoidance of negative reinforcers / outcomes.

In accordance with the theorising of Skinner (1968), Owens and Slade (1982) suggested that perfectionistic behaviour was associated with differing emotional outcomes depending upon whether the behaviour was a function of positive or negative reinforcement. Therefore, cognitions and behaviours aimed at achieving specific high goals in order to attain positive outcomes was perceived to be behaviour undertaken out of choice. In contrast, cognitions and behaviours aimed at evading negative consequences were driven by the need to achieve certain high standards in order to negate negative consequences. Therefore these processes are driven by a fear of failure and could be perceived as being coercive.

These conceptualisations are similar to those of Hamachek (1978). Normal perfectionists focus on their strengths while neurotic perfectionists are driven by a fear of failure. Therefore, as the existing measures of perfectionism were characterised by an emphasis on the negative conceptualisation of perfectionism, a further measure that incorporated both positive and negative aspects was developed (Terry-Short et al, 1995).

Based on the premise of existing established measures of perfectionism including: the Eating Disorders Inventory (EDI, Garner, Olmstead, & Polivy, 1983), the SCANS (Slade & Dewey, 1986), the BPS (Burns, 1980), the MPS-H (Hewitt & Flett, 1991), and the Neurotic Perfectionism Questionnaire (NPQ, Mitzman, Slade, & Dewey, 1994), Terry-Short and colleagues recently validated The Positive and Negative Perfectionism Scale (PANPS). The PANPS consisted of 40 items with 10 items constituting four categories: positive perfectionism, negative perfectionism, personal perfectionism, and socially prescribed perfectionism.

Overall, the results of the development of this measures revealed that Negative perfectionism could be said to be a function of the avoidance of negative consequences, regardless of the influence of personally or socially prescribed perfectionism. Similarly, Positive perfectionism could be said to be simply a function of the achievement of positive consequences. Subsequently, research has revealed that Positive perfectionists seem to have a desire to attain an ideal image whereas negative perfectionists seem to have a desire to avoid their feared self (Haase, Prapavessis and Owens, 1999; Slade & Owens, 1998).

In conclusion, it would seem that for Slade, Owens, and colleagues, perfectionism is shaped through social contingencies. An individual who is motivated by positive perfectionism wishes to achieve success in order to receive positive reinforcement. In contrast, negative perfectionists are driven by the need to avoid failure. Although perceived success for the perfectionist may not result in positive cognitions and affect, the consequences of failure will likely be detrimental to the individual's self-worth. Consequently, the conceptualisation of the three measures of perfectionism (Frost et al., 1990; Hewitt & Flett, 1991; Owens & Slade, 1987) all appear to be consistent in that neurotic perfectionism appears to a problematic dispositional tendency

Due to the conceptualisation and measurement technology put forth by Frost et al., (1990), Hewitt & Flett (1991), and Owens and colleagues, researchers have recently been able to measure the construct of perfectionism more accurately. In general, these empirical investigations have exposed perfectionism as an extensively debilitating trait. However, on occasion, these studies support the notion that perfectionism is associated with both adaptive and maladaptive achievement strivings (Hamacheck, 1978). Specifically, distinguishing characteristics of self-oriented perfectionism has included positive striving, creativeness, high standards, and harsh self-evaluation (Flett, Hewitt, Blankenstein, & Mosher, 1991; Flett, Hewitt, Blankenstein, & O'Brien, 1991). However, self-oriented perfectionism as an adaptive disposition still remains questionable.

The Hypothesised Adaptive Nature of Self-Oriented Perfectionism

Limited research on self-oriented perfectionism has related this construct with an adaptive tendency. For example, research has revealed that SOP has been found to be related with resourcefulness and constructive striving (Flett, Hewitt, Blankenstein, & O'Brien, 1991; Hewitt & Flett, 1991), positive psychological adjustment in the form of higher levels of emotional sensitivity and social expressiveness (Flett, Hewitt, & DeRosa, 1996), adaptive problem solving (Flett, Russo, & Hewitt, 1994), and task-focused coping (Dunkley & Blankenstein, 2000).

Although these studies suggest that self-oriented perfectionism can lead to positive achievement striving, little is known about the long-term relentless striving of personally high set standards. For example, Flett, Hewitt, Blankenstein, and Koledin (1991) revealed that amongst a sample of undergraduate students, self-oriented perfectionism was positively associated with the high self-expectations dimension of the Irrational Beliefs Test (IBT: Jones, 1969). This suggests that those individuals with personal perfectionistic standards endorse irrational beliefs involving the importance of achievement (Weissman, 1980). In addition, results further revealed that this aspect of perfectionism was related to greater levels of frustration (Flett et al., 1991). This emotional reactivity stems from the belief that when situations are not as ideal as the perfectionist would like them to be the situation is perceived as somewhat catastrophic (Ellis, 1962). Overall, results confirm previous research stating that high self-expectations are a core cognition that leads to emotional distress (Ellis, 1962, 1987). Therefore, the tendency to consistently pursue such high standards will inevitably be maladaptive in the long term.

In contrast to the hypothesised adaptive aspect of self-oriented perfectionism is the maladaptive aspect. Recent research has found that self-oriented perfectionism has been associated with a depressive-prone personality by increasing failure experiences and the belief that there is an inability to attain self-set standards (Burns & Beck, 1978; Hewitt & Flett, 1993; Hewitt & Genest, 1990).

These results suggest that achievement hassles serve to remind self-oriented perfectionists of imperfections in the self and are interpreted as incompetence or an inability to control achievement outcomes. As perfectionists tend to equate self-worth with performance, any disruptions in meeting their exceptionally high standards are interpreted as failure with implications for the self-concept (Hewitt et al., 1991).

It is therefore likely that perfectionism could affect the appraisal of the severity of stressful experiences through maladaptive coping. As coping plays an important role in various maladaptive outcomes (e.g., Endler & Parker, 1990), it is an essential component in shaping the psychological impact of life stressors (e.g., depression). Furthermore, the positive coping associated with self-oriented perfectionism in previous research (Flett, Russo, & Hewitt, 1994) is in contrast to the maladaptive coping strategies found in the majority of the research (e.g., Flett, et al, 1995; Hewitt & Flett, 1993; Hewitt, Flett, & Ediger, 1996; Hewitt, Flett, & Endler, 1995). This suggests that when self-oriented perfectionists focus on the consequences of falling short of their high standards they are vulnerable to experiencing negative affect that often results in maladaptive coping strategies rather than adaptive strategies to deal with the problem at hand.

Although many researchers (e.g., Hamachek, 1978) have suggested that self-oriented perfectionism (Hewitt & Flett, 1991) might lead to both adaptive and maladaptive achievement strivings, much of the literature has specifically focused on the debilitating influence of neurotic or socially prescribed perfectionism.

Distinguishing characteristics of socially prescribed perfectionism has included concerns over mistakes, doubts about actions, and pathological self-criticism (Hewitt & Flett, 1991). Consequently, much emphasis has been placed on neurotic or socially prescribed perfectionism with empirical research having attempted to understand how this construct influences cognitions, affect, and behaviour within varying contexts.

Neurotic or Socially Prescribed Perfectionism: A Debilitating Construct

Socially prescribed perfectionism is the belief that others maintain unrealistically high expectations and perfectionistic motives for one's own behaviours. In this instance, approval is perceived as external and uncontrollable which results in negative affective responses such as anxiety, depression, and an element of self-blame (Flett, Hewitt, Blankenstein, & Pickering; Flett, Hewitt, Garshowitz, & Martin, 1997; Martin, Flett, Hewitt, Krames, & Szanto, 1996). This results in overly critical evaluations of personal behaviour and an inability to derive satisfaction from performance. Therefore, socially prescribed perfectionists focus on the negative aspects of their performance to the point that ordinary events are interpreted as major distressing stressors (Hewitt & Flett, 1993).

In addition, a focus on evaluative concerns are theorised to predispose socially prescribed perfectionists to respond to stressful situations with a helplessness

orientation (see Dweck & Leggett, 1988). In effect, evaluative concerns predispose these individuals towards an avoidant coping orientation (Flett, Hewitt, Blankenstein, Sonlnik, & Van Brunschot, 1996) that renders the frequency and duration of stressors experienced as overwhelming (Holahan, Moos, & Bonin, 1997). Consequently, it is this dimension of perfectionism that has been found to be the most debilitating.

However, an important caveat of this dimension is that to date, research has not yet established whether those individuals who score highly on the dimension of socially prescribed perfectionism indeed “have social networks that are comprised of individuals with exacting standards and expectations” (Flett, Hewitt, Blankenstein, Solnik, & Brunschot, 1996, p. 248). That is to say, it is still not known to whom socially prescribed perfectionists look to when perceiving others to have stringent performance standards. However, research has established that this dimension is related to individual difference variables such as fear of negative social evaluation, the need for others’ approval, and the belief in the external control of reinforcement (Hewitt & Flett, 1991). Therefore, an emphasis on the need to meet others perceived standards often results in standards being further raised on initial attainment and consequently a sense of helplessness (Flett et al., 1996).

As a result, socially prescribed perfectionism appears to be associated with motivational deficits in that these individuals are more likely to perceive that they are continually involved in situations out-with their control. Perceived unrealistically high standards of achievement are impossible to meet resulting in elements of helplessness and hopelessness. Furthermore, exposure to controlling feedback in the form of others perceived expectations is said to undermine a sense of self-

determination (Deci & Ryan, 1985; Ryan 1982) and is linked with an inability to cope with personal problems (Flett et al., 1996). Specifically, perceptions of perfectionistic standards have been found to result in negative cognitions about personal ability to solve problems, a tendency to respond with emotional distress in the form of depression and anxiety (Flett, Hewitt, & Dyck, 1989; Flett et al., 1996). The presence of an association between socially prescribed perfectionism and anxiety is not surprising given the potential of evaluative threat perceived. A pre-disposition of being overly critical combined with doubts about meeting others' expectations will render these individuals highly susceptible to anxiety.

Perfection and Anxiety

Research within the clinical and counselling literature has revealed an association between perfectionism, self-consciousness, and various psychopathologies including social anxiety (e.g., Antony, Puron, Huta, & Swindon, 1998, Lundh & Ost, 1996; Mor, Day, Flett, & Hewitt, 1995; Saboonchi, Lundh, & Ost, 1999). For example, Hewitt and Flett (1991) revealed that socially prescribed perfectionism was strongly correlated with social anxiety among both students and clinical samples. Social anxiety as previously described, by definition, involves a preoccupation with ones self-presentation while simultaneously harbouring doubts about ones ability to convey a desired impression (Leary & Kowalski, 1990).

Similar findings to Hewitt and Flett (1991) were found between dimensions of neurotic perfectionism (socially prescribed perfectionism, concerns over mistakes, doubts about action) and measures of social anxiety and agoraphobia (Lundh & Ost, 1996; Saboonchi et al., 1999). For example, a recent study by Saboonchi et al (1999)

revealed that social phobics scored higher than controls on measures of social anxiety and public self consciousness and dimensions of concerns about mistakes, doubts about action, and parental criticism (aspects of neurotic perfectionism). Furthermore, the dimension of concerns over mistakes significantly correlated with measures of anxiety and depression.

In addition, Antony et al., (1998) explored the relationship between various anxiety disorders and dimensions of perfectionism. Results of the study revealed that social phobics had higher scores on the MPS-F scale on dimensions of concerns over mistakes, doubts about action, and parental criticism than non-anxious individuals. In addition, those individuals with social phobia, panic disorders, and obsessive-compulsive disorders were found to be higher on the dimension of socially prescribed perfectionism compared to the non-clinical volunteers. Similar results were found between panic disorder patients and dimensions of concerns over mistakes (Frost & Steketee, 1997). These results suggest that within the clinical and counselling domain anxiety disorders are associated with neurotic perfectionistic thinking and concerns about evaluation in the form of public self-consciousness. This would suggest that perfectionism is one motivational construct that plays a vital role in individuals' cognitive appraisal process. Furthermore, there is evidence to suggest that individuals are predisposed to experiencing anxiety due to exceptionally high performance related standards, either self- or other-imposed.

With this interpersonal dimension of perfectionism being the dimension most related to suicidal threat and intent within the clinical and counselling literature (Dean & Range, 1996; Hewitt, Flett, & Turnbull-Donovan, 1992; Hewitt, Newton, Flett, &

Callander, 1997; Hewitt, Norton, Flett, Callander, & Cowan, 1998), it would seem feasible to suggest that an understanding of the destructive effects of this dispositional construct is vital in order to clearly identify how this influences individuals appraisal process as outlined by Lazarus (1999). As a consequence of the maladaptive nature of perfectionism, research into this area is only beginning to emerge in sport.

Neurotic Perfectionism and Sport

With evaluative potential almost inevitable within a sporting arena due to media coverage and the general public nature of sport performances, the construct of perfectionism is an important avenue to explore. Research within sport settings is beginning to identify the debilitating nature of neurotic perfectionism among athletes (Coen & Ogles, 1993; Frost & Henderson, 1991; Hall, Kerr & Matthews, 1998). For example, an initial study by Frost and Henderson (1991) explored the relationship of perfectionism with female athletes' reactions to competition and coaches' judgments about the athletes' reactions to mistakes. Results of this study revealed that among a sample of Division III varsity athletes, both perfectionism scores and the dimension of concern over mistakes was positively and significantly ($r = .38$ and $.47$ respectively) related to trait anxiety. In addition, overall perfectionism, concern over mistakes, and doubts about action were the dimensions found to be negatively and significantly related with self-confidence ($r = -.36^*$, $-.61^{**}$, and $-.33^*$ respectively). Furthermore, those athletes high on the dimension of concern over mistakes further reported images of past mistakes as interfering with thought processes during competition. While athletes scoring high in overall perfectionism, concern over mistakes, parental criticism, and doubts about actions were rated by their coach as reacting badly to their personal mistakes, to pressure, and competition.

A further study by Coen and Ogles (1993) examined whether obligatory runners and anorexic individuals shared common personality characteristics. The results of the study indicated that obligatory runners experienced higher levels of trait anxiety and overall perfectionism than non-obligatory runners. Specifically, the dimension of Concerns Over Mistakes and Doubts about Action, were reflective of neurotic perfectionism among obligatory runners. These results suggest differences in the assumptions about the meaning and the consequences of mistakes between high- and low- concern over mistakes individuals and ultimately the consequences of perceived failure on self-worth. Therefore, in sport contexts, if athletes harbour doubts about their actions and have lower levels of confidence (Frost & Henderson, 1991), this may lead to the delaying of behaviours or the implementation of ineffective management strategies. Furthermore, a focus on mistakes is more likely to lead to a lack of enjoyment due to perceived public scrutiny and therefore potential withdrawal from the sport arena.

A further study by Hall et al., (1998) examined the antecedents of state anxiety in a sample of cross-country runners. Results of the study revealed that neurotic perfectionism was positively correlated with a pre-dispositional ego goal orientation while a task goal orientation was related to the adaptive dimension of Personal Standards. A most recent study by Hall et al., (2002) revealed similar findings. Results of this study found that an ego-orientation was positively related to the dimensions of concern over mistakes, high parental expectations, and doubts about action among a group of obligatory runners. In contrast, a task orientation was negatively related to concerns over mistakes and parental criticism.

Therefore, those individuals who perceived success in terms of outperforming others had higher levels of neurotic perfectionism. In contrast, perceptions of success in terms of personal improvement were not related to neurotic perfectionism. These results suggest that socially prescribed perfectionism is a personality factor that contributes to a focus on mistakes and negative affective outcomes. The perception of being exposed to interpersonal standards appears to undermine individuals' confidence leaving them more vulnerable to focus on the impact of failure on self-worth.

Overall, the results of these studies suggest that appraisal of a situation as having a highly evaluative context is potentially debilitating for the perfectionist. More specifically, neurotic perfectionism appears to be one dispositional construct that renders individuals more susceptible to perceptions of evaluative threat. This is due to the meaning of the situation being framed within a normative manner. If neurotic perfectionists define their actions in terms of meeting others perceived exceptionally high performance standards, evaluative threat is more likely as standards are externally imposed. Therefore, the importance of investigating this construct in exercise settings may be of vital importance as exercise contexts frequently occur in social contexts where interpersonal evaluation is inevitable (Leary, 1992).

Multi-dimensional Perfectionism and Exercise

Recent research has revealed a relationship between perfectionism and various forms of anxiety (Lundh & Ost, 1996; Saboonchi & Lundh, 1997) including competitive anxiety in sport (Coen & Ogles, 1993; Hall et al., 1998). Therefore it would be reasonable to assess the relationship between perfectionism and other possible types of anxiety. As SPA has been conceptualised as a sub-type of social anxiety (Hart et al., 1989) it seems viable to investigate its relationship with perfectionism.

Indeed, a most recent study by Hall, and Wigmore (2002) determined the relationship between individual differences in perfectionism and SPA among a sample of female aerobic exercise participants. Results of this study revealed that socially prescribed perfectionism was indeed significantly related to SPA while self-oriented perfectionism was not. An additional study by Haase et al. (2002) further revealed an association between Negative perfectionism and SPA among male and female athletes. In addition, both Negative perfectionism and SPA significantly contributed to 41% of the variance in the prediction of disturbed eating attitudes among females.

These results suggest that socially prescribed perfectionism is an important antecedent of SPA. Those individuals who perceive others to set unrealistically high standards experience more concerns and anxiety about their physique due to the possibility of failure to meet those standards and its impact on self-worth. Specifically, perfectionistic exercisers high in public self-consciousness (i.e., social physique anxiety; SPA) appear to have a strong need for self-presentation that is

characterised by the social facets of perfectionism (socially-prescribed; Hewitt, Flett, & Ediger, 1995). Those individuals who feel the need to attain others perceived imposed standard may engage in protective strategies. For example, this might include avoidance of public places where the physique could be scrutinised. This would serve to evade others negative appraisals of personal appearance and thus reduce perceptions of threat (Rosen, Srebnik, Saltzberg, & Wendt, 1991) if perceiving to fall short of set standards. Therefore, the resultant behaviour is to cope with perceptions of threat in a way that undermines health such as abstinence from exercise.

Therefore, in order to fully understand the psychological processes underpinning SPA it is necessary to further investigate its relationship with individual difference factors such as perfectionism that give meaning to exercise contexts and thus is an important source of primary appraisal (Lazarus, 1999). This will allow researchers and practitioners alike, to identify the psychological processes underpinning SPA and apply useful interventions informed by a sound theoretical understanding in order to ensure positive exercise experiences and consequently, continuing exercise adherence.

However, as previously mentioned, not everyone experiences high levels of physique anxiety and thus engages in maladaptive behavioural strategies (Franzoi & Shields, 1984; Franzoi and Herzog, 1986; Schwerin, Corcoran, Fisher, Patterson, Askew, & Olrich, 1996). According to Lazarus' theoretical approach, those exercisers with low levels of SPA may actually perceive the exercise setting as challenging as opposed to threatening. However, in order for a situation to be deemed

as challenging, it is necessary for the individual to perceive they possess the pre-requisite resources to cope with the situation. According to Lazarus, this assessment is likely to emerge out of the secondary appraisal process.

Mediators of Anxiety

The secondary appraisal process involves cognitive evaluation concerned with what the individual perceives they can do about the situation at hand in order to alleviate the appraisal of threat. Control and perceptions of coping potential are the major components of this appraisal process (Lazarus, 1991) and mediate the reaction to perceived threat (Lazarus, 2000) and the subsequent emotional response (Folkman & Lazarus, 1988). Through perceptions of coping, individuals may reappraise the significance of what is happening within a situation without actually changing the person-environmental transaction. Therefore, the inclusion of other individual factors related to coping may be important mediators of anxiety among perfectionists in exercise settings.

Research in physical activity settings has highlighted the importance of perceived ability in the mediation of achievement behaviour (e.g., Dweck, 1986; Roberts, 1992). However, it is first important to note that various terms have been used, often interchangeably, when describing perceptions of ability. Such terms have included perceived ability (Nicholls, 1984, 1989), perceived competence (Harter, 1981), and self-efficacy (Bandura, 1977, 1986). Specifically, perceived ability and perceived competence make reference to individual's assessment of personal competencies to complete a chosen task. Individuals will feel more confident when competence is based on personal improvement and learning than those individuals

who base their competence on comparing favourably in relation to others (Nicholls, 1989).

However, as previously mentioned, self-efficacy specifically refers to a more situation specific form of self-confidence and “people’s judgements of their capabilities to organise and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgements of what one can do with whatever skills one possesses” (Bandura, 1986, p. 391). These personal assessments of competence hold important implications for individuals’ adaptive or maladaptive strivings and have been found to play a central role in the sport motivation literature (Roberts, 1984).

For example, research in sport examining the effects of goal orientations has revealed that a task orientation (focus on personal improvement) is more likely to lead to the development of perceived ability than an ego-orientation in which favourable social comparison is important (Burton, 1989; Vlachopoulos & Biddle, 1997). Similarly, it has been suggested that perceived competence might be one factor leading to perceived success in exercise programs (Rejeski, 1992). For example, Markland (1999) recently investigated the influence of self-determination on intrinsic motivation and the moderating effect of perceived competence among a group of exercise class participants. Results of the study revealed that perceived competence was important in the prediction of intrinsic motivation when levels of self-determination were low among exercisers. As intrinsic interest has been one construct vital in facilitating continuing adherence, it would seem that perceived competence as

a secondary appraisal characteristic may be particularly important within the exercise domain.

However, although it seems reasonable to suggest that high perceived ability among perfectionistic SPA individuals may reduce perceptions of threat through feelings of competence, the inclusion of other individual difference factors may be equally important in the process of cognitive appraisal. After all Biddle and Mutrie (2001) have suggested that although perceptions of competence may be important in exercise settings, some individuals are prepared to put their competence on the line if believing their exercise participation is likely to assist in alleviating certain health problems. Therefore, the inclusion of other factors such as self-efficacy may prove useful in alleviating potential threat, particularly amongst physique anxious individuals.

There is a considerable amount of evidence to suggest that self-efficacy plays an important role in the adoption of and adherence to exercise regimes (McAuley et al., 2001). However, although an important determinant and consequence of exercise adherence, self-efficacy may be better understood as a secondary appraisal characteristic or coping mechanism. Specifically, Lazarus' theoretical approach suggests that if perceptions of threat are perceived during primary appraisal then one important cognitive appraisal to alleviate perceived threat is self-efficacy. For example, if individuals initially perceive the environment as threatening (i.e., unsure of pending demands) then an almost simultaneous reappraisal may be confidence to master the task at hand (Lazarus, 1999). This positive coping strategy is more likely to be used among optimistic individuals (Reker & Wong, 1985) and results in little

threat being perceived (Lazarus, 1999). In this way, self-efficacy is unlikely to be of particular importance until an element of threat is perceived.

For example, recent studies by McAuley (1993) and McAuley and colleagues (1993, 1994) revealed that self-efficacy was predictive of frequency of exercise participation and intensity at the mid-point of a five-month exercise program. However, over the remainder of the program, self-efficacy was not an important predictor of adherence. Although level of exercise experience was unknown, these results suggest that when perceptions of threat are evident at the beginning of a new exercise regime, self-efficacy is an important coping mechanism. These findings are consistent with the perspective on cognitive control (Bandura, 1989; McAuley et al., 2001) systems. When behaviours are less demanding and more easily engaged in, cognitive control systems give way to lower control systems and as such are important in the acquisition of behavioural proficiencies (Bandura, 1989). When situations or behaviours are perceived to become more demanding, and as such potentially threatening, efficacy cognitions are more likely to play an important role.

Individual difference factors such as perfectionism, give meaning to situations should be considered as important antecedents of SPA and therefore should be considered within Lazarus' conceptual model. Furthermore, as threat must be perceived in order for anxiety to occur, the mediational role of competence and self-efficacy may reduce perceptions of threat and subsequent negative affective responses experienced. This is of particular importance because if some exercisers are indeed displaying trait anxiety then the likelihood of experiencing positive affect will be reduced. This is not conducive to exercise adherence and therefore it's associated

health benefits. However, the appraisal of important coping mechanisms is more likely to result in perceptions of challenge (Lazarus, 1999), personal striving, and a more self-determined approach to exercise (Deci & Ryan, 1985). Therefore, moderating variables of competence and efficacy are more likely to influence positive affect such as enjoyment and may help to counteract the negative affect experienced by many exercisers.

Enjoyment and Adherence

Research suggests that to encourage exercise adherence, the facilitation of enjoyment and satisfaction is vital (Dishman, Sallis, & Orenstein, 1985; Kendzierski & DeCarlo, 1991; Kimiecik & Wankel, 1993; Wankel & Berger, 1990). Enjoyment that may arise as a consequence of exercise participation has been found to be a particularly salient construct within exercise settings. For example, summary evidence on adherence (Dishman et al., 1985) revealed that although adults will initiate an exercise regime for reasons of health, they are more likely to continue participation due to feelings of enjoyment and positive well-being.

Furthermore, research in the sport domain has consistently identified that enjoyment and satisfaction is more likely to derive from a sense of personal mastery than when using comparative criteria to define subjective success (Duda, Chi, Newton, Walling, & Catley, 1995; Duda & Nicholls, 1994; Kavussanu & Roberts, 1996). A task orientation appears to be a particularly salient factor for continuing exercise adherence in physical activity due to its association with enjoyment (Gouda, Biddle, & Fox, 1994).

In short, the research in sport and exercise settings highlights the importance of enjoyment through self-referenced terms of criteria. This is conducive in facilitating continuing adherence. However, individual differences in perfectionism have the potential to undermine positive affective consequences. For example, research has suggested that due to the perfectionists' criteria for success as being dependent upon exceptionally high performance standards, little satisfaction is often experienced (Hewitt & Flett, 1991). This has been found to be particularly relevant to neurotic perfectionists who define themselves in terms of meeting externally imposed performance standards (Deci & Ryan, 1985; Hewitt & Flett, 1991). For these individuals, a fear of failure ultimately reduces their overall levels of enjoyment (Bunker & Williams, 1986; Burns, 1980).

However, any perceived threat to personal achievement may be counterbalanced through the secondary appraisal process in which perceptions of personal resources to cope may result in reduced negative affect. In this way the moderating variables of competence and efficacy may be vital in assisting the perfectionist to reappraise the situation as less threatening. In this way an element of enjoyment could still be maintained.

However, in order to evaluate an environment as threatening, regardless of perceived inadequate resources to meet situational demands; the situation itself must be deemed important to the individual (Lazarus, 1999). For example, within exercise settings, if individuals are not particularly concerned about their appearance or level of fitness, it is unlikely that they will suffer from SPA and a lack of enjoyment. However, arguably, as perfectionists are likely to experience heightened anxiety under

evaluative conditions, this may still render certain situations as having the potential for experiencing threat and little enjoyment even if not considered important. Perfectionism after all is considered to be an extremely stable trait (Hewitt & Flett, 1991) combined with perceptions of importance may potentially be destructive.

Summary and Purpose

It is evident from the extant clinical, counselling, sport, and exercise literature that multidimensional perfectionism represents a strong vulnerability factor to a range of negative cognitions and affective responses (e.g., Frost, Marten, Lahart, & Rosenblate, 1990). Perfectionism has been found to be associated with low personal adjustment (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991; Hewitt, Flett, & Turnbull-Donovan, 1992) and related forms of self-destruction (Blatt, 1995). The link between perfectionism and maladjustment is partly due to the fact that perfectionists experience exacerbated maladjustment in the form of failure and stressful experiences (Flett, Hewitt, Blankenstein, & Pickering, 1998). Failures tend to be over-generalised and perceived as characteristic of the entire self (Hewitt & Flett, 1991). Furthermore, socially prescribed perfectionists often perceive failures in the form of criticism from significant others (Frost et al., 1990) as opposed to self-referenced criticism that may be particularly important in a social domain such as exercise (Leary, 1992).

More recently, perfectionism has been shown to be important in the exercise domain. Recent research (e.g., Haase et al., 2002; Hall et al., 2002) has identified that neurotic perfectionism is related to SPA. This is likely due to the perfectionistic exerciser's concerns about falling short of others exceptionally high performance

standards and the subsequent negative impact on self-worth. When the meaning of a situation is defined in comparative terms negative affect is more likely to arise than when focusing on one's personal agenda (Roberts, 1992).

However, contemporary research within the sport literature has identified the importance of individuals' cognitive appraisal process as underlying anxiety in sport settings (e.g., Hall & Kerr, 1997; Hall, Kerr, & Matthews, 1998; Jones Swain, & Cale, 1990, 1991; Swain & Jones, 1992). Furthermore, according to Lazarus' conceptual approach, threat must be experienced in order for anxiety to arise. Therefore, as the relationship between dispositional perfectionism and SPA will give meaning to individuals in exercise settings, this relationship is more likely to result in evaluative threat.

In conjunction with primary appraisal is secondary appraisal. These appraisal characteristics are likely to mediate perceptions of threat. If exercisers perceive they have the adequate personal resources to cope with the exercise situation, this is more likely to reduce threat (Lazarus, 1999) and subsequently facilitate enjoyment. In this way, self-efficacy as a coping mechanism and therefore a mediator of threat may be one individual difference factor that needs to be considered as an antecedent of SPA as opposed to an outcome variable.

However, past research has suggested that exercise behaviour is likely to be influenced by perceptions of confidence in personal capabilities to plan and optimistic self-beliefs in being able to perform the required behaviours (Dawson, Brawley, & Maddux, 2000). Conversely, when SPA is experienced this could negatively

influence exercisers confidence to exercise under a variety of potentially conflicting life-style situations (self-efficacy). Subsequently, this more *general* aspect of efficacy is likely to influence a more *specific* aspect of efficacy, namely performing in-class behaviours and various planning and scheduling strategies required to attend exercise classes (capacity beliefs). Specificity of self-efficacy is deemed important to more accurately predict affective responses and behaviour in exercise (Bandura, 1986; McAuley et al., 2001).

Furthermore, the sport and exercise literature (Kavussanu & Roberts, 1996; Nicholls, 1992) has identified the importance of perceived ability as an important construct in facilitating individuals' personal beliefs about success. Perceived ability has been shown to be one factor that plays a critical role in explaining motivation and achievement related anxiety in academic and sport settings (e.g., Covington, 1992, Hall et al., 1998). Therefore it is likely that within the context of Lazarus' conceptual model, the relationship between perfectionism and SPA and its influence on perceived threat will be mediated by coping mechanisms including ability, self-efficacy, and capacity beliefs.

Therefore, the purpose of the present study was to firstly, replicate and extend Hall and Wigmore's study by examining the influence of individual differences in perfectionism on SPA and in turn investigating its influence on cognitions and affect including self-efficacy, capacity beliefs, and enjoyment. Secondly, to further explore the mediating influence of coping strategies on SPA, threat, and subsequent levels of enjoyment. Specifically, to determine whether the relationship between perfectionism and SPA is an indirect one, with secondary appraisal characteristics (including,

ability, importance, self-efficacy, and capacity beliefs) mediating perceptions of threat and enjoyment.

Hypotheses

Based on the aforementioned research it was hypothesised that:

- H1 Self oriented perfectionism would be positively related with social physique anxiety.
- H2 Socially prescribed perfectionism would be positively related with social physique anxiety.
- H3 Self oriented perfectionism would be negatively related with enjoyment.
- H4 Socially prescribed perfectionism would be negatively related with enjoyment.
- H5 Social physique anxiety would be negatively related with both self-efficacy and capacity beliefs.
- H6 Self-efficacy and capacity beliefs would be positively related with enjoyment.
- H7 The relationship between self-oriented perfectionism and SPA would influence perceptions of threat and enjoyment and this relationship would be mediated by secondary appraisal characteristics including ability, self-efficacy, and capacity beliefs.
- H8 The relationship between socially prescribed perfectionism and SPA would influence perceptions of threat and enjoyment and this relationship would be mediated by secondary appraisal characteristics including ability, self efficacy, and capacity beliefs.

In order to investigate the above hypotheses, two individual path analyses will be employed using structural equation modelling procedures to examine the variables of interest. The first path analysis (Model 1) will examine the relationship among self-oriented perfectionism (SOP), socially prescribed perfectionism (SPP), social physique anxiety (SPA), capacity beliefs, self-efficacy, and enjoyment. The second path analysis (Model 2) will further examine the influence of perfectionism (SOP, SPP) and SPA on perceived threat and enjoyment. In addition, the mediational role of secondary appraisal characteristics (ability, self-efficacy, capacity beliefs) will be examined.

However, for Model 2, only those participants scoring 5 or above on the two perceived importance scales (2 items on a 7-point Likert type scale) will be included in the analysis ($N = 317$). According to Lazarus (1999), a particular situation needs to be perceived as important to an individual before they can feel threatened. Furthermore, based on the recommendations of Bandura (1977, 1986) and McAuley (1992) self-efficacy needs to be assessed relative to specific behaviours if increased magnitude of prediction is to be attained. Therefore, the inclusion of the variable of capacity beliefs served this purpose. However, the variables of self-efficacy, capacity beliefs, and ability will be combined into one latent factor, *confidence*, as they were deemed to be conceptually similar. Once the models have demonstrated the expected relationships, the present research will determine which Model (1 or 2) will provide a better understanding of the hypothesised relationships.

CHAPTER 2
METHOD AND RESULTS

Methodology

Participants Study 1

The participants for this study (Study, $N=404$) were healthy adult exercise participants. As eighty seven participants reported that being good at exercise was not very important to them, this resulted in a smaller sample of participants for Model 2 ($N = 317$). For Model 1, participants included three hundred and seventy six females and twenty-eight males, aged between 15 and 66 years old ($M = 39.3$, $SD = 11.3$). The participants were predominantly involved in exercise fitness classes for beginners or were involved in one star rating classes described as *suitable for newcomers and those who enjoy a low intensity workout*. The classes lasted 45-60 minutes in duration. The majority of the participants ($n= 233$) reported having participated in moderate activities regularly (2-3 times per week) and had been exercising for more than 6 months. In contrast, 136 participants exercised regularly and had started within the last 6 months, 15 participants had exercised at some point in the past 6 months, although not recently, 11 participants currently did not participate in regular activity but planned to do so at some time in the future, 6 participants currently did no activity, while 3 participants omitted to comment. Participants were from several health clubs and fitness venues in Southeast England.

Prior to data analysis, missing values were identified and clarified as randomly scattered and therefore replaced with values reflecting the participants mean score on the particular measure. This is an acceptable, conservative procedure as the mean for the distribution as a whole does not change (Tabachnick & Fidell, 1996). Furthermore, the individuals mean score on the scale was chosen instead of a group mean as this was thought to more accurately reflect the individuals' likely score

without the researcher guessing or basing the response on the rest of the groups' responses.

Measures

Demographics

Participants recorded age and gender and level of exercise experience as obtained from the Exercise Stages of Behaviour Change (e.g., I currently do no moderate or vigorous activity but plan to in the next 6 months).

Social Physique Anxiety Scale

The SPAS was originally developed by Hart, Leary, and Rejeski (1989) in order to assess individuals' concerns about *others perceptions* of their physiques (eg., I am comfortable with the appearance of my physique). These negative perceptions were said to deter individuals from participating in exercise programs. This measure is a 12-item self-report inventory measured on a 5-point Likert-type scale from 1(Strongly Disagree) to 5 (Strongly Agree). Original research (Hart et al., 1989) using the SPAS revealed good test-retest reliabilities (.90, .82, respectively) over an eight-week period. Following initial development and validation of this scale (Hart et al., 1989), considerable debate has centred on the dimensionality of the SPAS (e.g., Crawford & Eklund, 1994; Motl & Conroy, 2001). Due to a lack of consensus regarding the number of items that is more likely to constitute a valid and reliable instrument, it was decided that for the purposes of the present study, the 12-item version of the SPAS would be employed as a uni-dimensional instrument. Internal consistency for the 12-item version of this instrument has been shown to be .90 (Hart et al., 1989) and .72 (McAuley & Burman, 1993).

Multidimensional Perfectionism Scale (MPS).

The MPS (Hewitt & Flett, 1989, 1991) is a 45-item scale comprised of three subscales of 15 questions each. Two of the three subscales were deemed relevant in the present study (self-oriented, socially prescribed). Participants are asked to make a 7-point rating of statements reflecting self-oriented (e.g., I set very high standards for myself) and socially prescribed perfectionism (e.g., People expect nothing less than perfection from me). Higher scores on each of the scales reflect greater levels of perfectionism. Studies using the MPS in college student samples have shown it to reflect three empirically distinguishable dimensions, good test-retest reliabilities over a 3-month period (.88, .85, and .75 for MPS-Self, MPS-Other, and MPS-Social scales, respectively), and has construct validity with other measures of perfectionism (Hewitt & Flett, 1991). Internal consistency for the MPS dimensions has been shown to be .86, .82, and .87 for the dimension of MPA-Self, MPS -Other, and MPS Social respectively (Hewitt & Flett, 1991).

Perceived Ability.

This construct was assessed using a 3-item scale and adapted for exercisers based upon the work of Eccles and Harold (1991). This measure required participants to rate their ability as an exerciser, rate how good they thought they were compared with others, and how good they were compared with other exercisers of a similar age (e.g., compared with others your age, how good are you at physical activity?). Responses to each item were made on a 7-point Likert-type scale that ranged from 1 (Very Poor) to 7 (Excellent). Internal consistency for this instrument has been shown to be .89, (Hall, Kerr, & Matthews, 1998).

Perceived Importance of Exercise.

This construct was assessed by asking participants to indicate on a 7-point Likert-type scale that ranged from 1 (Extremely Unimportant) to 7 (Extremely Important) how important physical activity was to them and how important physical activity was to them compared to other activities (e.g., for me, being good at physical activity is...). This measure consists of 2 totalled items reflecting the degree of importance of being competent at physical activity and exercise. These items have been used in previous research (Hall & Kerr, 1997).

Capacity Beliefs.

This measure is similar to that suggested by Bandura (1977, 1986, 1997), in which participants rate their confidence in performing a specific behaviour (i.e., self-efficacy beliefs). Items within this measure reflect the exercisers' perceived confidence in their ability to complete *specific* exercise-related behaviours. Six of the items reflected necessary in-class exercise behaviours (e.g., completing the warm-up and stretching component of the class) while the other five items represented various planning and scheduling strategies required to organise one's lifestyle in order to attend the exercise classes (e.g., get to each fitness class on time). Both in-class and scheduling behaviour measures were included to adequately represent the range of behaviours that reflect capacity beliefs (Dawson, et al., 2000).

Participants were asked to indicate how confident they were that they could complete each of the behaviour statements on a 100-point confidence scale on which a rating of zero indicated low confidence and a rating of 100 indicated high confidence. Internal consistency (Cronbach, 1951) for this instrument has been shown to be .83 (Dawson et al., 2000).

Self-Efficacy Scale

The 16 items on this scale were specific to the behaviour under study as recommended by self-efficacy theorists (Bandura, 1977, 1986; Garcia & King, 1991). The items reflected the confidence that participants felt with regards to exercising under a variety of potentially conflicting general lifestyle situations (e.g., when on holiday, when tired etc.). Participants were asked to indicate how confident they were that they could attend exercise sessions on a 100-point confidence scale on which a rating of zero indicated low confidence and a rating of 100 indicated high confidence.

Endler Multidimensional Anxiety Scale - Perception Scale

This measure was designed to assess respondents' subjective perception of the type and degree of threat evoked by a specific situation. For this study only two of the four types of threatening situations were deemed relevant to the exercise context, namely, social evaluation and threat. The EMAS-P scale (Endler, Edwards, & Vitelli, 1991) consists of 2 items measured on a five-point intensity responses ranging from 1 (Not at all) to 5 (Very Much). Respondents were instructed to report the degree to which they perceive the situation as threatening or evaluative. In addition, an open-ended question provided an opportunity for the respondent to describe specific aspects of the situation that they perceived as threatening.

The Physical Activity Enjoyment Scale

This measure (PACES) was designed to assess individuals' level of enjoyment of a specific physical activity (Kendzierski & DeCarlo, 1991). The measure consists of 18 bipolar items (e.g., "I enjoy it...I hate it") on a 7-point Likert-type scale consisting of descriptors of feelings experienced while engaging in physical activity.

Internal consistency has been shown to be good, 0.93 (Kendzierski & DeCarlo, 1991).

Procedures

After receiving permission from both exercise club managers and exercise class instructors, exercise class participants were requested to take part in a study designed to gain a better understanding of exercise motivation. Participants were told that their participation in the study was voluntary and that responses would remain anonymous. Questionnaires were individually administered by the researcher to the participants after the exercise sessions and required 10 to 15 minutes to complete (see appendices A to I for informed consent letter and questionnaire). On several occasions fitness instructors assisted the researcher in administering the questionnaires to exercise class participants, which were then collected by the researcher on completion. The participants were reminded that their responses were specific to the exercise class they had just completed and were encouraged to ask the researcher about any questions that arose during administration of the questionnaire.

Results

Descriptive Statistics and Scale Reliabilities Study 1

Table 2 below, depicts the alpha reliabilities, means, standard deviations, and correlations, for each of the 9 variables of interest: social physique anxiety, self-oriented perfectionism, socially prescribed perfectionism, ability, importance, capacity beliefs, self-efficacy, threat, and enjoyment. From Table 2 below, it can be seen that all reliability coefficients (the diagonal of the correlation matrix) revealed adequate internal consistency ($> .70$; Nunnally, 1978).

An examination of the means revealed that the present sample scored above the midpoint on 7 of the 9 scales including SPA (4.35 on a 7-point scale, SD = 7.9), SOP (4.35 on a 7-point scale, SD = 13.74), ability (4.85 on a 7-point scale, SD = 3.04), importance (5.39 on a 7-point scale, SD = 1.9), capacity beliefs (9.33 on a scale of 0% to 100%; i.e., 11-point scale, SD = 16.31), self-efficacy (8.25 on a scale of 0% to 100%, SD = 27.76), and enjoyment (6.03 on a 7-point scale, SD = 19.32). The means for the socially prescribed perfectionism scale was just below the midpoint (3.40 on a 7-point scale, SD = 11.63) as was perceived threat (1.81 on a 5-point scale, SD = 1.81). These descriptives suggest that the present sample were slightly physique anxious and higher in SOP than SPP. Furthermore, the exercisers were highly confident (on all three measures), indicated that being good at exercise was extremely important to them and enjoyed their exercise experience.

Table 2. Study 1. Intercorrelations, Reliability Coefficients, Means, and Standard Deviations of the Measures of Social Physique Anxiety, Self-Oriented Perfectionism, Socially Prescribed Perfectionism, Perceived Ability, Importance, Capacity Beliefs, Self-efficacy, Perceived Threat, and Enjoyment

Variable	1	2	3	4	5	6	7	8	9
1 SPA	.88								
2 SOP	.19 **	.89							
3 SPP	.27 **	.52 **	.85						
4 Ability	-.33 **	.09	-.19 **	.91					
5 Importance	-.03	.32 **	.04	.46 **	-				
6 Capacity Beliefs	-.11 *	.03	-.15 **	.55 **	.31 **	.91			
7 Self-efficacy	-.16 **	-.00	-.12 *	.47 **	.27 **	.77 **	.94		
8 Threat	.23 **	.18 **	.18 **	-.04	.11 *	-.21 **	-.26 **	-	
9 Enjoyment	-.07	.08	-.04	.28 **	.20 **	.47 **	.46 **	-.24 **	.94
Means	4.35	4.35	3.40	4.85	5.39	9.33	8.25	1.81	6.03
Standard Deviations	7.90	13.74	11.63	3.04	1.90	16.31	27.76	1.81	19.32

* $p = < .05$, ** $p = < .01$, Note. $N = 404$. SPA = social physique anxiety; SOP = self oriented perfectionism; SPP = socially prescribed perfectionism. Correlations are presented below the diagonal and alpha coefficients are presented in bold on the diagonal.

Confirmatory Factor Analysis

To determine the adequacy of the single factor structure of the SPAS as proposed by Hart et al., (1989), a confirmatory factor analysis (using EQS, Bentler, 1995) was conducted. The standardised maximum likelihood factor loadings for each of the measured items on the latent construct (SPA) can be seen in Table 4 below. All loadings were significant and the patterns of associations between each item and the latent variable (SPA) were similar. However, item 2r was somewhat lower than the others. To assess the fit of the data to the proposed factor structure a number of model fitting procedures were examined as generated as a function of the LISREL program. The results S-B Scaled $\chi^2[54, N = 404] = 335.43, p = 0.00$ (Satorra & Bentler, 1988), $\chi^2 = 436.35$, NFI = .78, Robust CFI= .88 suggest that with fit indices below the recommended .90 criterion (Hu & Bentler, 1995) and the observed chi –square statistic being significant (a non-significant chi-square is preferred) the model was a poor fit to the data.

Table 3. Standardised maximum likelihood loading of the SPAS

SPAS Item	Loading
1	0.60
2	0.34
3	0.61
4	0.63
5	0.53
6	0.68
7	0.74
8	0.53
9	0.70
10	0.68
11	0.54
12	0.73

Note. N = 404.

Bivariate Relationships

Pearson's Product-Moment correlation analyses were performed to determine the bivariate relationships among the nine variables of interest. Results revealed that perceived ability, capacity beliefs, and self-efficacy were all significantly and negatively related to SPA as would be expected. Significant and positive relationships were found between SPA, SOP, SPP, and threat, as would be expected while SPP, importance and threat were significantly and positively related to SOP.

The variables of ability, capacity beliefs, and self-efficacy were all found to be significantly and negatively related to SPP while threat was found to be significantly and positively related. Ability was found to be positively and significantly related with importance, capacity beliefs, self-efficacy, and enjoyment while similar relationships were found between importance and capacity beliefs, self-efficacy, and enjoyment. Additionally, importance was also significantly and positively related with threat. Both capacity beliefs and self-efficacy were positively and significantly related with enjoyment and as expected, significantly and negatively related with threat. Furthermore, threat was significantly and negatively related to enjoyment.

Path Analysis Model 1

Prior to assessing the fit of Model 1, the univariate and multivariate normality of all 9 variables were examined. The z-skewness and z-kurtosis values for all 9 variables applicable to the 2 path analyses are presented in Table 4 below.

Table 4. Model 1 z-skewness and z-kurtosis values.

Variable	z-skewness	z-kurtosis
Social Physique Anxiety	- 1.28	- 1.39
SOP	0.95	- 1.26
SPP	- 0.88	- 1.08
Ability	- 1.19	1.24
Importance	- 7.42	6.09
Capacity Beliefs	- 9.30	5.00
Self-Efficacy	- 7.36	3.78
Threat	8.77	2.03
Enjoyment	- 12.45	10.42

Results revealed the presence of univariate normality for four of the nine variables (social physique anxiety, self-oriented perfectionism, socially prescribed perfectionism, ability) while the other five variables (importance, capacity beliefs, self-efficacy, threat, and enjoyment) were non-normal as indicated by the values of skewness (values ranged from -12.45 to +8.77) and kurtosis (values ranged from -1.08 to +10.42). In order to adjust for non-normality, potential outliers were identified and several procedures used in order to try and reduce their influence. Firstly, the raw data was checked for incorrect data entry values and missing values. Secondly, outliers were identified with reference to observation of box plots. Those observations that fell outside the box plots were checked to ensure that the participant number raw data identified were cases from the intended population (Tabachnick & Fidell, 1996; West, Finch, & Curran, 1995). As a result, no outliers were removed ($N=317$) and the data were analysed with normal theory ML estimation with the 'Robust' statistics option. This option calculates the Satorra-Bentler scaled chi-square; a scaling correction computed on the basis of estimation method, model, and sample kurtosis values (Bentler, 1995). The scaled chi-square statistic has been shown to provide trustworthy standard errors (Hu & Bentler, 1995).

In order to assess the adequacy of the model fit, it was necessary to examine the fit indices produced by EQS. However, as many criteria have been used to assess the fit of the model, it was decided to report multiple measures as opposed to relying on one single measure (Bollen, 1990). Tabachnick and Fidell (1996) have suggested that this procedure may be preferable, as good fitting models will produce consistent results on various indices in most cases. However, as the presence of a non-normal sample was evident in the present research (see Table 5 above), estimation techniques that made adjustments for non-normal samples were used (discussed below; West, Finch, & Curran, 1995). This was deemed necessary due to non-normality often leading to underestimations of fit indexes such as the Normed Fit Index (NFI; Bentler & Bonnett, 1980) and the Comparative Fit Index (CFI; Bentler, 1990).

Consequently, four fit indices will be reported that consider the goodness of fit between the model and the data (Hoyle and Panter, 1995). This will include two absolute fit indices, the Satorra-Bentler scaled chi-square and the unadjusted chi-square value. These indices assess how well the a priori model reproduces the sample data (Hu & Bentler, 1999) while the former index also takes into account nonnormal data. This method incorporates a scaling correction for the chi-square statistic when distributional assumptions are violated. Its computation considers the model, the estimation method, and the sample kurtosis values and consequently is considered to be the most reliable method (Hu, Bentler, & Kano, 1993). In addition, the analyses will include the computation of robust standard errors adjusted for the degree of multivariate kurtosis. Both methods are

considered to have shown good performance, regardless of degree of nonnormality (West, Finch, & Curran, 1995).

In addition to the absolute fit indices, two indices of incremental fit will be reported. These assess the adequacy of a specified model in relation to a baseline model and will include the Bentler-Bonnett nonnormed fit index (BBNNFI) and Bentler's Robust comparative fit index (Robust CFI). The BBNNFI is similar to the BB Normed Fit Index (BBNFI) in that its value indicates the proportion in the improvement of the overall fit of the hypothesised model relative to the null or independence model (Kline, 2000). The main difference with the BBNNFI is that it includes a correction for model complexity while the values of this incremental fit index can fall outside of the range 0-1. The Robust CFI is interpreted in the same way as the BBNFI and is relatively unaffected by sample size. Overall, Bentler and Bonnett (1980) and Hu and Bentler (1995) have proposed a minimum acceptable value level of .90 for fit indexes (range between 0 and 1) with higher values indicating better fit.

For Model 1 the variables of interest included social physique anxiety (SPA), self-oriented perfectionism (SOP), socially-prescribed perfectionism (SPP), capacity beliefs, self-efficacy, and enjoyment. In Model 1, it was assumed that firstly, self-oriented perfectionism and socially prescribed perfectionism were related and secondly, it was assumed that self-oriented perfectionism and socially prescribed perfectionism would directly influence both social physique anxiety and enjoyment. In addition and based on the work of Leary & Atherton (1986) and McAuley, Bane et al. (1995) it was assumed that social physique anxiety would influence self-efficacy, which in turn would influence

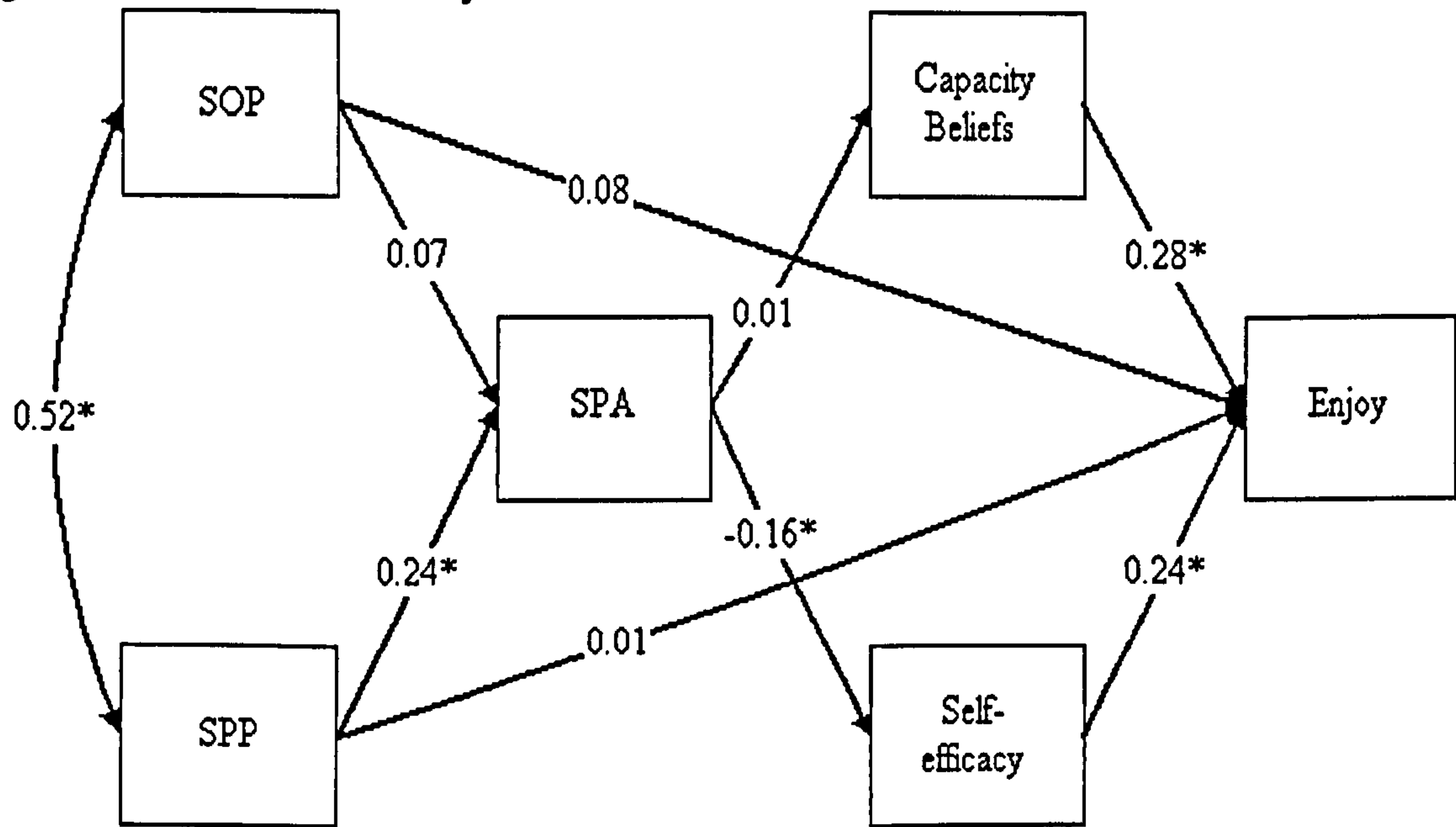
capacity beliefs, a more specific aspect of self-efficacy. Finally, it was assumed that capacity beliefs and self-efficacy in turn would influence enjoyment.

The largest standardised residuals scores for the variables of interest were less than .2 (values ranged from -0.12 to .05) and were distributed between -0.2 and +0.1. The robust estimation method that addresses non-normality was employed to estimate the model (West, Finch, & Curran, 1995). Multivariate normality was estimated by the Mardia's normalised estimate (11.85). S-B Scaled $\chi^2(5, N = 404) = 12.06, p = 0.03$, (Satorra & Bentler, 1988), $\chi^2 = 12.91$, BBNFI = 0.96, Robust CFI = 0.99. The observed scaled chi-square statistic is significant (a non-significant chi-square is preferred) and suggests that the sample data does not match the hypothesised model. However, if the chi-square statistic is less than two times the reported degrees of freedom (5) then this suggests an adequate fit of the model to the data (Tabachnick & Fidell, 1996). In this instance, the ratio of chi-square to the degrees of freedom is slightly greater than two ($\chi^2/df = 2.41$) suggesting that the data does not fit the proposed model. The BBNFI and the Robust CFI index values are both above the minimum standard (0.9) suggesting a good fit of the model. In summary, the results of the overall fit indices indicate an adequate of the proposed model.

The final structural model (Model 1) is presented in Figure 2 below and reveals that self-oriented perfectionism and socially prescribed perfectionism were significantly and positively related. In turn, self-oriented perfectionism was positively related with SPA while socially prescribed perfectionism was significantly and positively related with SPA. Self-oriented perfectionism was further positively related enjoyment, while socially prescribed perfectionism was unrelated. In addition, SPA was significantly and negatively related with self-efficacy while being unrelated to capacity beliefs. As would be expected,

both self-efficacy and capacity beliefs were significantly and positively related with enjoyment.

Figure 2. Model 1 Path Analysis



Note: SPA = social physique anxiety, SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism

Model 2

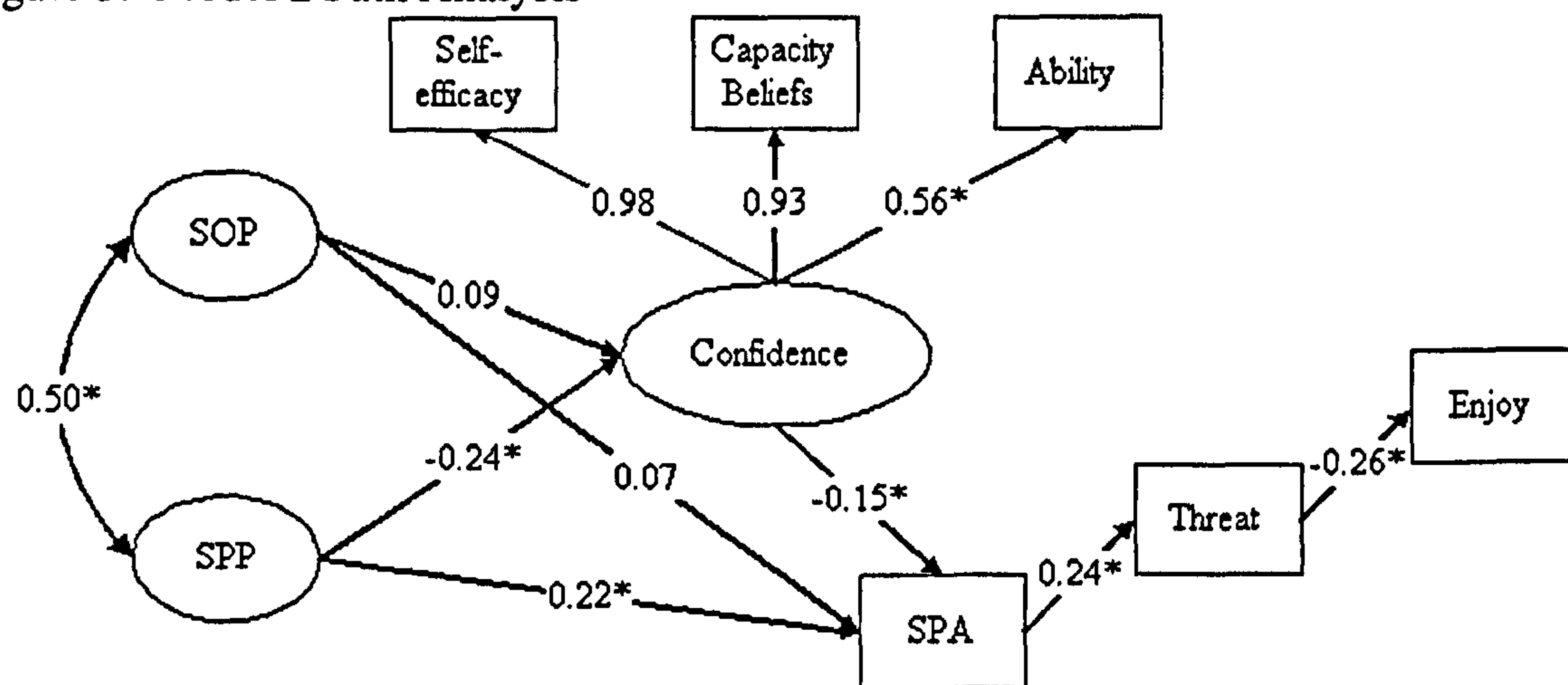
In addition to the previous hypotheses for Model 1 it was assumed that the relationship between SOP and SPA would influence perceptions of threat. However, this relationship would be mediated by secondary appraisal characteristics, including, ability, capacity beliefs, and self-efficacy. Similarly to the former assumption, it was assumed that the relationship between SPP and SPA and its influence on perceptions of threat would be mediated by secondary appraisal characteristics including confidence.

Path Analysis: Model 2

Multivariate normality was estimated by the Mardia's normalised estimate (9.30). Goodness of fit indices revealed a poor fit of the model to the data, S-B Scaled $\chi^2[17, N = 317] = 133.87, p = 0.00, \chi^2 = 159.02$, BBNFI = 0.66, Robust CFI = 0.77. The observed scaled chi-square statistic is significant (a non-significant chi-square is preferred) and suggests that the sample data does not match the hypothesised model. In addition, the ratio of chi-square to the degrees of freedom is greater than two suggesting that the data does not fit the proposed model. The BBNFI and the Robust CFI index values are both below the minimum standard (0.9) suggesting a poor fit of the model. In summary, the results of the overall fit indices indicate a poor fit of the proposed model.

The final structural model (Model 2) is presented in figure 3 below and reveals that SOP and SPP were significantly and positively related. No significant relationship was found between SOP and confidence and SOP and SPA. In contrast, SPP was found to be significantly and positively related with SPA and significantly and negatively related with confidence. In turn confidence was significantly and negatively related with SPA which in turn was significantly and positively related with threat. As expected, threat in turn was significantly and negatively related with enjoyment.

Figure 3. Model 2 Path Analysis



Note: $N = 317$, SPA = social physique anxiety, SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism

CHAPTER 3
DISCUSSION
MODEL 1 AND 2

Discussion Model 1

Model 1 was tested in an attempt to explain the relationship between perfectionism, social physique anxiety, and cognitive and affective responses of exercise class participants (namely, self-efficacy, capacity beliefs, and enjoyment). It was hypothesised that (H1) self-oriented perfectionism would be positively related with social physique anxiety and that (H2) socially prescribed perfectionism would be positively related with SPA. Although SOP was found to be positively related with SPA this result was not significant and therefore this hypothesis was not supported. However, the results of the path analysis provide support for H2.

These findings suggest that dispositional social physique anxiety is influenced by perfectionism with SPP having a greater influence than SOP on SPA. Within exercise settings, it is likely that exercisers are more concerned about meeting the physical appearance standards of others in order to negate possible criticism from others. These results are in alignment with previous research (e.g., Coen & Ogles, 1993; Hall et al., 2002; Haase et al., 2002) that report similar findings, highlighting the debilitating nature of neurotic perfectionism.

Furthermore, it was hypothesised that (H3) self-oriented perfectionism would be negatively related with enjoyment while similarly, (H4) socially prescribed perfectionism would be negatively related with enjoyment. The results of the path analysis do not support hypotheses H3 and H4. The results of H3 may not be that surprising as past research (e.g., Frost et al., 1990) suggests that although self-oriented perfectionists have exceptionally high standards, they do allow themselves some degree of flexibility. This suggests that positive affect is more likely to be attained. However, although the present

study revealed a positive relationship between these two variables, no significant relationship was found.

In contrast, research states that socially prescribed perfectionists perceive such rigid standards by others that little or no enjoyment is experienced (Hewitt & Flett, 1991). Within exercise settings, a lack of enjoyment is likely to be a consequence of trying to attain a perceived unrealistically high standard of appearance. For socially prescribed perfectionists, the maintenance of an ideal public image renders individuals vulnerable to potential criticism. Prescribed standards are external and therefore uncontrollable. In this way, negative affect would be more likely (Deci & Ryan, 1985).

The lack of a significant inverse relationship between SPP and enjoyment is somewhat surprising as exercise classes provide the *perfect* arena in which physical self-presentation is likely to come under scrutiny (Leary, 1992). However, as the present sample consisted of predominantly older female exercisers (mean age 39.3 years), it is more likely that a more positive sense of self was evident as older adults have differing priorities than younger ones and are motivated by differing reasons (Campbell, MacAuley, McCrum, & Evans, 2001). Furthermore, the majority of the exercisers ($n = 233$) reported having participated in moderate activities regularly (2-3 times per week) and had been exercising for more than 6 months. Past research suggests that previous vicarious experiences are more likely to result in increased self-efficacy (Bandura, 1986; McAuley, 1985). This is more likely to result in positive affect. Therefore, experience may have played a role in ensuring that an element of enjoyment was still possible to attain among perfectionists concerned about meeting others' perceived standards.

In addition, it was hypothesised that (H5) SPA would be negatively related to both self-efficacy and capacity beliefs, while (H6) both capacity beliefs and self-efficacy would

be positively related with enjoyment. The results of this path analysis only provide partial support for H5 while fully supporting H6. These findings suggest that SPA is related to a lack of confidence in perceptions of ability to attend exercise classes under conflicting life situations (e.g., when tired). Research has stated that SPA is related to a lack of exercise adherence (e.g., Lantz, Hardy, & Ainsworth, 1997). Therefore with SPA being related to perfectionism, and perfectionism having been found to be related to procrastination and delaying behaviours (Ferrari, 1992), this result may be an excuse for barriers to exercise. Furthermore, the relationship between SPP and SPA and its influence on confidence is due to physique related concerns and the possibility of failure to self-present according to the perceived perfect standards set by others. Consequently, this in turn has a negative impact on perceptions of confidence.

In contrast, SPA was unrelated to capacity beliefs while self-efficacy and capacity beliefs were both significantly related to enjoyment. These results appear to support past research (e.g., Bozoian, Rejeski, & McAuley, 1994; McAuley et al., 1995), which suggests that the more efficacious exercisers experience more positive engagement and revitalisation (McAuley & Courneya, 1992; McAuley, Talbot et al., 1999) than the less efficacious exercisers. Overall, it would seem that SPP was significantly and positively related with social physique anxiety which in turn was significantly and negatively related to self-efficacy. As expected, both self-efficacy and capacity beliefs were significantly and positively related to exercise enjoyment. These findings provide support for the predictions of research into neurotic perfectionism and the potentially debilitating consequences of perceived excessively high standards.

Discussion Model 2

Model 2 was an extension of Model 1, which further attempted to explore the mediating influence of coping strategies on SPA, threat, and subsequent levels of

enjoyment. Specifically, to determine whether the relationship between perfectionism and SPA is an indirect one, with secondary appraisal characteristics (ability, self-efficacy, and capacity beliefs) mediating perceptions of threat and its influence on enjoyment among a sample of participants who placed high importance on being good at physical activity. In addition, it was hypothesised (H7) that the relationship between SOP and SPA would influence perceptions of threat and enjoyment and that this relationship would be mediated by secondary appraisal characteristics including perceived ability, self-efficacy and capacity beliefs, and (H8) that the relationship between SPP and SPA would influence perceptions of threat and enjoyment and that this relationship would be mediated by secondary appraisal characteristics including perceived ability, self-efficacy and capacity beliefs.

The results of Model 2 partially support H7 and H8. The results suggest that the relationship between SOP and SPA were not significant. However, the relationship between SPP and SPA significantly and positively influenced perceptions of threat. In particular, SPP had a significant and direct influence on SPA. These findings are in alignment with the research on perfectionism (e.g., Frost & Marten, 1990; Hewitt & Flett, 1991) although the overall fit of the model suggests a lack of overall support for the hypotheses. Socially prescribed perfectionists strive to avoid failure and hold concerns about situations such as the exercise domain in which mistakes or perceived failures are made salient. Furthermore, perceived threat significantly and negatively influenced enjoyment as might be expected. High evaluative threat was more likely to be experienced as the sample of exercisers stated being good at exercise was important (Frost & Marten, 1990; Lazarus, 1999). Perfectionists under conditions of high importance have been found to report more negative affect (Frost & Marten, 1990). However, it could also be argued that threat is likely to be experienced by perfectionists even under conditions of less

importance. For a perfectionist, perceived failures are often representative as being reflective of the entire self (Burns, 1980).

In addition there was no significant relationship between SOP and secondary appraisal characteristics (confidence) which then negatively and significantly influenced SPA. However, SPP significantly and negatively influenced confidence. Individuals who focus on social comparison have an external motivational orientation similar to the socially prescribed perfectionist. As a focus on social comparison has been found to be significantly and positively related to maladaptive coping strategies (Kim & Duda, 1999; Thill, 1993) the negative relationship found between SPP and confidence was in the expected direction although overall the lack of model fit does not support these findings.

In addition, perceptions of confidence in turn negatively and significantly influenced SPA. This would suggest that while Model 2 revealed a significant relationship between SPA and threat, it is important to consider secondary appraisal characteristics that are likely to mediate this negative influence. This suggests that perfectionism combined with perceptions of confidence can result in perceptions of challenge as opposed to threat, which is unrelated to SPA. Overall, it would seem that perceived confidence as a secondary appraisal characteristic mediates the influence of the relationship between perfectionism and SPA on threat. However, the present findings provide little support for the predictions of research into trait perfectionism and SPA and the mediational role of coping resources due to a poor fit of the hypothesised model.

Overall Conclusions

Perceived threat arises as a consequence of inherent trait characteristics such as perfectionism due to the propensity for self-focused attention. This was found to be particularly problematic among socially prescribed perfectionists whose concerns about

falling short of others perceived high standards was particularly debilitating due to a perceived lack of control. This disposition renders individuals more likely to experience anxiety as the meaning of the consequences of failure is interpreted as impacting upon self-worth. The results of Model 1 are in alignment with that of Hall and Wigmore (2001). Socially prescribed perfectionism was significantly related to SPA. In addition, Model 1 further revealed that SPA negatively influenced self-efficacy. Furthermore, both self-efficacy and capacity beliefs both positively influenced enjoyment. As self-efficacy has been found to predict positive affect (Bozoian, Rejeski, & McAuley, 1994) these results were in the expected direction.

However, Lazarus' conceptual model proposes that once individuals have determined what is at stake for the exerciser, secondary appraisal characteristics will determine how well the encounter could be managed (Folkman, 1992). Perceived threat in turn may then be mediated by individuals' appraisal of various coping mechanisms (Lazarus, 1999). In short, if the exerciser perceives they possess the prerequisite resources to reduce environmental demands, threat is reduced and the exercise setting may be interpreted as challenging.

Therefore, the findings of the present research (Model 2) proposed that the constructs of ability, self-efficacy, and capacity beliefs would serve to mediate perceived threat. Conversely, individuals are more likely to experience SPA if wishing to make an ideal impression on others but having low feelings of self-efficacy. Arguably, self-efficacy as a coping mechanism is better understood as a mediator of anxiety as threat needs to be perceived in order for self-efficacy to be used by individuals. However, although the relationships of the present research were in the expected direction, the results of Model 2 provided little support for the hypothesised relationships found due to very poor fit indices.

Limitations

Unfortunately, the relationships found in the path analyses were very low. One limitation of this research that may address why the path analyses did not fit the hypothesised model is due to the present sample having consisted of an extremely homogenous group of highly confident exercisers who perceived little threat in the exercise environment. As self-efficacy is influenced by past performance accomplishments (Bandura, 1986, 1997) the confidence perceived by the present sample is likely due to the present sample having consisted predominantly of exercisers who had been exercising for more than 6 months. Although beginner classes were attended for data collection, it appears that the individuals participating in the classes themselves were not beginners. As a result of the potentially highly evaluative context of such settings, maybe past experience in a beginner's environment serves to reduce threat among trait anxious exercisers.

In addition, there are limitations in terms of testing mediating effects. To provide stronger evidence of mediation, an independent assessment of the impact of both SOP and SPP on the variables of interest (threat, enjoyment) is required (Baron & Kenny, 1986). This might further lead to improvement of the fit of the model. However, although these additional paths were included in the model and tested in additional analyses (although not reported), the results remained similar to those reported in this study. Another strategy used to increase model fit are post-hoc modifications. One example of this is the Wald test (Hoyle & Panter, 1995; Tabachnik & Fidel, 1996). This test suggests the removal of specified paths in order to improve model fit. However, as this test is based on statistical and not substantive criteria, this method was not adopted in the present study.

Furthermore, as the present sample consisted of predominantly older female exercisers, it is likely that they possessed better coping skills than younger exercisers. Positive coping in the form of approach coping is more likely to be used among those individuals who feel more secure in their relationships with others and who feel highly confident (Anshel, Kim, Kim, Chang, & Eom, 2001). Research has also suggested that although SPA is prevalent among females, individuals motives for exercise change from looking good amongst younger individuals to exercising for reasons such as mental alertness when older (Campbell, McAuley, McCrum, & Evans, 2001). In this way older females may have had lower levels of SPA than the younger females due to variations in importance of exercise motives. Furthermore, as coping is influenced by both personal and situational factors (Anshel et al., 2001) it may have been that the motivational climate perceived in the exercise setting was more facilitative of a personal self-focus. This might account for the low correlations found between perfectionists and social physique anxious individuals.

A further limitation of the present research is the correlational design of the path analyses. In this sense correlational research does not infer direct causes of one variable on another variable (Thomas & Nelson, 1990). Furthermore, the self-report style of this study has potential for social desirability. Therefore, the fact that the exercisers had reported highly enjoyable exercise experiences may have been in part due to a sense of loyalty to fitness instructors, particularly as the majority of exercisers were reported as regular exercisers.

Future Research Directions

Based on the limitations of the present research, future research would gain valuable insight by investigating the influence of perfectionism on SPA among beginner exercisers. As beginners are more likely to perceive evaluative threat in social settings this would have implications for practitioners into how best to intervene in order to promote a more self-focused orientation among socially prescribed perfectionists. Furthermore, it may be that as exercisers progress through the stages of exercise change (Reed, 1999), perfectionism as a state construct is more likely to be highlighted at differing stages of adherence. As individuals enter a new exercise setting, certain cues and demands will be made more salient within the exercise environment. Therefore, similar to research concerning the perceived motivational climate in other contexts such as sport (e.g., Ames, 1992), research could seek to investigate which cues are more salient to the perfectionist and seek to determine how perfectionists interpret such cues and how they might further influence SPA.

Finally, research into perfectionism has identified the importance of the socially prescribed perfectionist to meet *others* perceived standards (Hewitt & Flett, 1991). However, it has not yet been established exactly who these *others* might be. If research could begin to identify to whom the perfectionistic exercisers judge their personal performance standards, then further strategies could be established to counteract the debilitating influence these perceived others are having upon perfectionists' cognitions and affective responses.

Although little statistical support was provided for Model 2, the present research provides some insight into the cognitive and affective processes influencing perfectionistic exercisers. Furthermore, the incorporation of SPA into a sound theoretical framework such as Lazarus', will only further aid in advancing researchers and practitioners knowledge of the antecedents of differing exercise experiences.

CHAPTER 4
STUDY 2
INTRODUCTION

Research suggests that the multidimensional nature of perfectionism is related to differing motivational orientations (e.g., Hewitt & Flett, 1991). For example, socially prescribed perfectionism is related to numerous social interaction variables including fear of negative social evaluation and the belief in the external control of reinforcement (Hewitt & Flett, 1991). Although these perfectionistic standards are hypothesised to emanate from external sources (Flett, Hewitt, Blankenstein, & Pickering, 1998) and therefore an external motivational orientation, research has yet to thoroughly investigate this contention among perfectionists. However, as both dimensions of perfectionism have similarities reflected in individuals' need to attain perfectionistic standards, either self- or other-imposed, self-reinforcement based on acquisitions or a contingent self-worth (Deci & Ryan, 1995) may be an important avenue to explore. Therefore, in addition to Study 1, Study 2 will attempt to expand on Study 1 by determining the differing motivational orientations among dimensions of perfectionism and consequently its influence on SPA.

Perfectionism and a Contingent Self-Worth

Perfectionists appear to gain self-reinforcement based upon a contingent sense of self in which the attainment of perfectionistic standards provides the basis for self-worth. This contention was reiterated by Sorotzkin (1985) who suggested that perfectionists measured their self-worth by the achievement of unattainable goals. Although this can be a powerful motivator (Deci & Ryan, 1995), it also tends to be associated with a kind of narcissism that has individuals anxiously focused on their own agenda such as being fit or fashionable. This can be counterproductive in that self-worth based on acquisitions such as achievement and appearance is likely to lead to a tenuous sense of self (Deci & Ryan, 1995). The need to continually match some controlling standard (either self or other-imposed) would be difficult to maintain (Lockhart, 1989) and may lead to a fragile sense of

self. With recent research having identified that social physique anxiety is underpinned by perfectionism (Haase et al., 2002; Hall et al., 2002), it may be that differing motivational orientations hypothesised to be related to individual differences in perfectionism, is an additional factor underpinning differences in exercise investment.

Social Physique Anxiety and Contingent Self-Worth

SPA and body image disturbance have been found to be more prevalent amongst females than males with socio-cultural research (see McKinley & Hyde, 1996) having identified social pressures (e.g., media, friends, and family) as the impetus for the need to conform to specified body shape standards (Cusamano & Thompson, 1997). These societal standards could be said to provide individuals with a template against which cognitions and emotions about personal appearance can be formed (Davis, 1997 fox). Therefore, if one's self-worth becomes dependent upon physical appearance, individuals' may come to internalise the importance of appearance enhancement as an effective social implement (Deci, Vallerand, Pelletier, & Ryan, 1991). In this way, striving to achieve the ideal image in order to negate others disapproval may be one strategy used by those who highly value their appearance. However, the lack of satisfaction experienced by the neurotic exerciser is not conducive to long-term exercise adherence and its associated health benefits. Therefore, in contrast to an external motivational orientation and thus a contingent self worth, positive affective consequences are more likely to arise when exercisers have a more true sense of self (Deci & Ryan, 1995).

Integrated Self-Worth and Exercise Adherence

In contrast to a contingent self-worth is an integrated or true sense of self (Deci & Ryan, 1995). Individuals with an integrated sense of self feel more secure as feelings of worth are not dependent upon accomplishments or favourable comparisons (Deci & Ryan, 1995). Although these individuals are said to have aspirations and goals, and will strive to accomplish them (Deci & Ryan, 1995), their feelings of worth would not fluctuate as a result of their accomplishments. Unlike the neurotic perfectionist, although they feel satisfaction from their achievements, they do not feel “depressed and worthless” (Deci & Ryan, 1995, p.33) when they fail.

Therefore, the distinction between true- and contingent- self-worth is the distinction between an integrated self and an un-integrated self. Within exercise settings, individuals’ initial involvement may be prompted by extrinsic factors such as appearance enhancement (ADNFS, 1992). However, long-term participation is more likely to be maintained when behaviour is regulated by an integrated sense of self (Deci, Vallerand, Pelletier, & Ryan, 1991). Behaviour that emanates from an integrated sense of self is said to be completely volitional and intrinsically motivating (Deci, 1975).

Intrinsically motivated behaviour has been defined as engagement in an activity in the absence of extrinsic rewards (Deci & Ryan, 1990) such as prizes or prestige and constraints from others (Fox, 1997). When intrinsically motivated, individuals participate in their chosen activity primarily for the satisfaction and enjoyment gained from the participation itself. Feelings of satisfaction derived from intrinsically motivated behaviours are experienced from involvement in an activity purely for the love of learning and mastery attempts (White, 1959), and emanate from an integrated sense of self. This usually results

in positive affect such as enjoyment, satisfaction, and fun (Vallerand, Deci, & Ryan, 1987). Therefore, an understanding of how events enhance or undermine intrinsic motivation is vital for enjoyable experiences, reduced SPA, and continued exercise adherence. One theoretical approach that addresses this contention is cognitive evaluation theory (Deci & Ryan, 1985).

Self-Determination and Cognitive Evaluation Theory

Cognitive evaluation theory is one of three sub-theories within the broader self-determination theoretical framework that proposes that situations can influence intrinsic motivation through their effects on basic psychological needs including autonomy and perceptions of competence (Deci & Ryan, 1985). From a conceptual perspective, it is posited that since these needs are essential constructs for personal growth and actualisation, individuals are intrinsically motivated to direct themselves toward situations and experiences to satisfy these basic needs (Vallerand & Losier, 1999). Therefore, situations that are interpreted as supporting these needs will facilitate motivation and subsequent optimal functioning and a sense of well-being (Ryan & Deci, 2000; Ryan & Frederick, 1997).

According to DeCharms (1968), individuals are more likely to feel autonomous and intrinsically motivated when they perceive themselves to be in control or the 'origin' of their behaviour. These individuals are said to have an internal locus of causality; for example, when individuals believe that they are freely engaging in behaviour with no sense of coercion. In contrast, those individuals who perceive their actions to be initiated by some external factor (a 'pawn'), where behaviours may be coerced are said to be less

autonomous and have an external perceived locus of causality; for example, when individuals feel that they must comply with a particular behaviour.

Accordingly, individuals with an internal perceived locus of causality are more likely to be optimally and intrinsically motivated (deCharms, 1968) and therefore more self-determined. Therefore, the construct of self-determination and perceived locus of causality are conceptually different. For example, individuals are more likely to feel more self-determined when the perceived locus of causality is internal and less self-determined when the perceived locus of causality is external. In this way self-determination provides an exact account of varying forms of motivation, whereas, locus of causality concerns the perceived source of behaviour initiation (Deci & Ryan, 1985; Rose, Markland, & Parfitt, 2001).

Research has demonstrated that situations that are perceived by individuals as being supportive of one's feelings of autonomy facilitate a more self-determined approach to exercise (e.g., Frederick & Ryan, 1995; Ryan, Vallerand, & Deci, 1984; Vallerand, Deci, & Ryan, 1987; Vallerand & Reid, 1990). For example, a recent study investigating the role of perceived autonomy in exercise motivation using Ajzen's (1988) theory of planned behaviour revealed that those individuals with perceptions of autonomy, reported higher intent to exercise than those individuals low in perceived autonomy (Chatzisarantis & Biddle, 1998). A further study by Dwyer (1995) revealed that perceived choice (a central feature of self-determination; Deci & Ryan, 1985; Deci, Vallerand, Pelletier, & Ryan, 1991) of music accompanying an aerobic video enhanced intrinsic motivation among exercisers compared to those exercisers with no choice of music. In addition, an earlier

study by Thompson and Wankel (1980) revealed similar findings. Exercise participants who believed that their preferred activities had been considered in the designing of a fitness program demonstrated greater exercise adherence and intentions to continue. These results suggest that the construct of autonomy is important in the prediction of exercise behaviour and may be “...the forgotten elements of intrinsic motivation...” (Biddle & Mutrie, 2001, p.72).

The Facilitation of Intrinsic Motivation Through Autonomy and Competence

The notion of locus of causality is arguably an important construct to consider in exercise investment. For example, previous research (e.g., McAuley, Duncan & Tammen, 1989) determining individuals' levels of intrinsic motivation (the Intrinsic Motivation Inventory; IMI) have incorporated the dimension of perceived choice as one factor contributing towards higher levels of intrinsic interest among aerobic class participants (McCauley, Wraith, & Duncan, 1991). The inclusion of this dimension was suggested (McAuley, Duncan & Tammen, 1989) to reflect perceived locus of causality, a core construct of cognitive evaluation theory (Deci & Ryan, 1985).

However, the authors (McAuley et al, 1991) reported that the reliability of the IMI was suspect. This may have been a result of the perceived choice items not fully reflecting the perceived locus of causality construct as postulated by Deci & Ryan (1985). For example, as reviewed by Markland and Hardy (1997), the inclusion of items such as item 21, *I participate in this aerobics class because I have no other choice*, appear to reflect extreme perceptions of external pressure rather than behaviour that is perceived to be initiated by external factors. Consequently, Markland & Hardy (1997) developed a new

measure of perceived locus of causality for exercise that was based on items from Deci and Ryan's (1985) original conceptualisation of locus of causality.

In order to develop the Locus of Causality for Exercise Scale (LCE), Markland and Hardy (1997) generated nine items that reflected whether individuals were likely to exercise by choice or because they felt they had to. The 9 items were administered to 241 female aerobics, keep-fit, and physical education participants. The participants were asked to respond to the items on a 7-point Likert-type scale (1=Strongly Disagree, 7=Strongly Agree). Based on the responses, the items were subjected to a principal components analysis with varimax rotation. Three factors emerged that reflected perceived locus of causality for exercise with eigenvalues greater than one that accounted for 61.4% of the total variance. Cronbach's alpha for the three factors were .738 (Factor 1), .614 (Factor 2), and .426 (Factor 3). According to the authors, Factor 1 was deemed to be the most suitable measure of perceived locus of causality due to this factor having the most acceptable reliability and its items having good face validity.

As the sample used for the exploratory factor analysis was heterogeneous with regards to participants' age, gender, and amount of exercise undertaken, the new measure of LCE further underwent confirmatory factor analysis to ensure the measure was not confounded by these variables. Results revealed an excellent fit of the model (Chi square = 1.64; $df = 2$; $p = .44$, CFI = 1.00, RMSEA = 0.00). Two additional studies reported (Markland & Hardy, 1997) the alpha coefficients as being .83 and .82 and were further found to be a strong predictor of intrinsic motivation.

Although more research is needed to validate the LCE measure, a study by Markland (1999) utilised this measure among a sample of aerobic class participants. However, although Markland (1999) reported recognising the conceptual differences between self-determination and locus of causality, the author operationalised self-determination using the LCE measure. High scores on the LCE scale were said to indicate greater self-determination or a more internal perceived locus of causality while lower scores reflected lower levels of self-determination.

Therefore, further validation using this measure would prove useful for determining the perceived differing sources of exercise adherence among exercisers. This may be particularly salient among perfectionistic exercisers. As self-oriented perfectionism is hypothesised to be a consequence of self imposed exceptionally high performance standards it is more likely these individuals will have an internal perceived locus of causality. In contrast, as socially prescribed perfectionists are concerned about meeting others' particularly high standards, it is likely that these individuals will have an external perceived locus of causality. As a result, variations in high and low levels of autonomy among perfectionists are likely to influence self-determination. Research has not yet addressed this contention.

However, in addition, to individuals' need for autonomy, situations that are perceived as signifying competence or the belief that one has the ability to effectively handle the situation at hand will facilitate intrinsic motivation (Deci, Vallerand, Pelletier, & Ryan, 1991). For example a recent study by Markland and Hardy (1997) investigated the effects of self-determination and perceived competence on intrinsic motivation among exercisers. Using structural equation modelling procedures results of the study revealed that, the model that provided the best fit to the data reflected self-determination as a

mediator of perceptions of competence on intrinsic motivation. In addition, Markland (1999) further investigated the effects of perceived competence on intrinsic motivation among a group of female aerobic dance class participants. Results of this study revealed that perceived competence had no effect on intrinsic motivation when levels of self-determination were high. In contrast, when levels of self-determination were low, perceptions of competence were positively related with intrinsic motivation.

Overall, these results suggest that when levels of self-determination are low among exercisers, perceptions of competence are important to facilitate intrinsic interest. However, when self-determination is high among exercisers, perceptions of competence have little influence on intrinsic motivation. As suggested by Markland (1999), as long as exercisers feel that they are choosing to exercise as opposed to having to exercise, it is not necessarily important to feel competent at the activity to facilitate participation.

However, the importance of facilitating perceived competence among beginner exercisers may be vital as it is unlikely that they have yet discovered the enjoyable experiences to be gained from their behavioural investment (McAuley et al., 1991). Furthermore, as exercise attendance requires a certain amount of organisation and commitment, it is unlikely that individuals will maintain a regular program of exercise purely for the intrinsic reasons of enjoyment (Mullan, Markland, & Ingledew, 1997). It is more likely that some individuals will seek out control to regulate their participation (Deci & Ryan, 1985). Therefore, the notion of the intrinsic versus extrinsic motivational dichotomy proposed by Cognitive Evaluation Theory is somewhat misleading.

More recently, extrinsically motivated behaviours have been said to exist on a continuum in which they vary in their degree of self-determination (Deci & Ryan, 1990; Mullan & Markland, 1997). That is to say, that both self-determined and controlled behaviours are intentional but their regulatory processes are very different (Deci et al., 1991). This motivational continuum is grounded in Organismic Integration Theory (OIT), a sub-theory of self-determination theoretical perspectives and may provide some useful insight into the motivational orientations of perfectionistic exercisers.

Organismic Integration Theory

OIT is concerned with the processes by which individuals transform external contingencies that are not initially intrinsically interesting into regulation by internal processes (Schafer, 1968). According to Deci & Ryan (1985) there are four types of behavioural regulation that reflect varying degrees of self-determination. These regulatory processes exist on a continuum ranging from non-self-determined motivation to completely self-determined motivation. The continuum could be said to represent the degree to which the regulation of socially sanctioned standards (i.e., non-intrinsically motivated behaviour) have been internalised (Deci & Ryan, 1991, 1995).

According to self-determination theoretical perspectives, individuals tend to internalise external contingencies and integrate those processes to maximise their experiences of autonomy or self-determination (Deci & Ryan, 1985, 1991, 1995). For example, if individuals exercise to achieve an ideal body image, they may exercise for external reinforcements or out of societal pressures. However, over a period of time they may come to enjoy their exercise participation and participate for the satisfaction gained

from participation. In this way, although the behaviour initially may not have arisen out of intrinsic interest, participation may become more internalised over time and therefore more self-determined. In this way, this motivational continuum may be particularly relevant for explaining the adaptive and maladaptive components of self-oriented perfectionism.

A Differentiated View of Extrinsic Motivation

As postulated by Deci & Ryan (1985, 1991), the main types of extrinsic regulation, resulting from different degrees of internalisation and integration are external regulation, introjected regulation, identified regulation, and integrated regulation. The least self-determined behaviour is that of amotivation. According to Deci and Ryan (1991) amotivated actions are not mediated by intentionality. That is to say that its occurrence is experienced as impersonally caused due to the person being ineffective in its regulation. These individuals usually just go through the motions of their actions without intent (Deci et al., 1991). Amotivated individuals do not value their activity (Ryan, 1995), do not feel competent to undertake it (Bandura, 1986), and do not expect any desired outcome to arise from participation (Seligman, 1975). Consequently, there is a lack of contingency between their actions and the outcome and reasons for continuing involvement cannot be found (Vallerand & Fortier, 1998). Furthermore, amotivation is similar to feelings of learned helplessness (Vallerand, 1997).

External regulation describes behaviours that have not been internalised but are initiated by external contingencies such as to attain a reward or to avoid punishment. This type of behaviour is therefore controlled by external contingencies rather than being autonomous. For example, those individuals who are coerced into exercising by general

practitioners in order to negate potential health risks (Biddle, 1997; Biddle & Mutrie, 2001) could be said to externally regulated.

Introjected regulation refers to behaviours that are motivated by internal pressures resulting from regulatory processes that have not been integrated (Deci & Ryan, 1995). For example, individuals who exercise because they feel guilty if they do not participate cannot be truly self-determined. Rather, these individuals exercise in order to negate any negative emotions such as guilt or anxiety (Ryan & Deci, 2000). Therefore, although these individuals may appreciate the value of a specific behaviour such as exercise, they have not fully identified with it and only participate because they think they *should* (Deci & Ryan, 1995; Ryan, Connell, & Gronlick, 1992). Therefore, although this regulation is internal to the individual, it does not require external prompting. Put differently, introjected regulation is said to represent regulation by a contingent self worth (Deci & Ryan, 1995).

Towards the more self-determined end of the motivational continuum is identified regulation. This last type of extrinsic motivation is in operation when the individual comes to value and judge the behaviour as important and therefore, participates out of choice (Deci & Ryan, 1995). For example, individuals who exercise because they *want* to and not because they *ought* to are becoming more self-determined in their behavioural investment. The most autonomous form of extrinsic motivation is integrated regulation that derives from an integration of values into one's sense of self (Deci & Ryan, 1995). In this way, an extrinsic regulatory process has been fully integrated and the individual will be self-determined in their approach to the behaviour at hand. However, this form of behaviour, although fully integrated may still be extrinsically motivated as a consequence of the

pursuit of personal goals rather than purely for the love of the activity itself (Biddle & Mutrie, 2001).

In contrast, the highest level of self-determination is inherent in intrinsic motivation. As suggested earlier, intrinsic motivation refers to partaking in an activity purely for the pleasure of the activity itself (Deci, 1971). However, more recently, Vallerand and colleagues (Vallerand et al., 1992) have suggested the existence of three types of intrinsic motivation. The first, intrinsic motivation to know occurs when individuals participate in the activity to learn something new. Secondly, intrinsic motivation toward accomplishment, results from trying to obtain new personal objectives such as mastering difficult tasks. Thirdly, intrinsic motivation toward experiencing stimulation occurs when individuals engage in sport for the sensations derived from the activity itself such as the excitement experienced.

It can therefore be seen that a reliance on external standards leads to a lack of intrinsic motivation combined with less self-determination. Extrinsic motivation is said to arise when individuals' perceive their actions to be initiated by external forces. For example those individual's who participate in health related activities on the advice of their general practitioner, may perceive himself or herself to be externally controlled. In addition, even personal initiation to exercise for the attainment of health-related outcomes may be experienced as a controlling form of behavioural regulation (Chatzisarantis & Biddle, 1998). After all, an excessive concern of public health professionals for altering behaviour toward a more active lifestyle may constitute an environment that primarily promotes a controlling form of behavioural regulation. Either way, perceived controlling

events pressure individuals to think, feel, or behave in ways that consequently undermines intrinsic motivation (Deci & Ryan, 1985) and therefore continued adherence.

An understanding of the relationship between the variations in behavioural regulation and perfectionism may further enhance researchers' knowledge of perfectionists motivational orientation. For example, SPP has been hypothesised to be an amotivational state associated with a sense of helplessness about one's inability to establish personal control over others perceived evaluative standards (Flett, et al., 1991). Therefore this dimension may be more associated with lower levels of self-determination.

In a similar vein, as the varying levels of regulation are suggested to reflect varying levels of self-determination then this may be an appropriate way to investigate the motivational orientation of the self-oriented perfectionist. For example, research has suggested that this dimension of perfectionism might be related to both an intrinsic motivational orientation in the form of resourcefulness and constructive striving (Flett, Hewitt, Blankenstein, & Mosher, 1995) and an extrinsic orientation as reflected in the negative affect experienced (Flett, Hewitt, et al., 1995, Juster, Heimberg, Frost, Holt, Mattia, & Fattenda, 1996; Hewitt, Newton, Flett, & Callander, 1997). However, it may be that self-oriented perfectionism is related to varying degrees of non-intrinsically motivated behaviour, from extrinsic to a more intrinsic orientation. An understanding of the motivational constructs associated with individuals' differences in perfectionism will further aid our understanding of the antecedents of SPA. Therefore, in order to address this contention, appropriate measurement technology is required that can be applied to exercise settings.

The Measurement of Behavioural Regulation in Exercise

Most recently, initial research within the exercise domain is beginning to explore varying levels of self-determination among exercise participants. In order to measure the varying forms of regulation as conceptualised by Deci and Ryan's (1985, 1990) continuum of extrinsic and intrinsic motivation, the Behavioural Regulation in Exercise Questionnaire (BREQ) was developed by Mullan, Markland, and Ingledew (1997).

In order to develop the BREQ, the authors conducted two studies. The first study involved the pooling of 30 items that specifically referred to the five subscales of behavioural regulation (Deci & Ryan, 1985, 1990): external, introjected, identified, intrinsic, and amotivated regulation. The 30 items were derived from the Academic Motivation Scale (AMS; Vallerand, Pelletier, Blais, Briere, Senecal, & Vallieres, 1992) and the Self-Regulation Questionnaire for Academic settings (SRQ-A; Connell & Ryan, 1984, 1987; Ryan & Connell, 1989). The AMS in addition to measuring extrinsic, introjected, and identified regulation also measures three further types of intrinsic motivation and amotivation while the SRQ-A is conceptually similar (Deci & Ryan, 1991). The wording for the items of the BREQ was modified to reflect reasons for individuals exercise participation. The 30 items were administered to 298 individuals (68% female, 32% male) who attended a local sports centre and reported having exercised regularly for more than six months. The participants were asked to rate the degree to which each of the items were characteristic or true of them and to indicate their responses on a 5-point Likert-type scale (0=Not true for me, 4=Very true for me).

Confirmatory factor analysis using the EQS (Bentler, 1995) statistical package revealed that the five-item amotivation subscale had high levels of skewness (range = 1.14 to 4.62) suggesting that this item was not applicable for the sample targeted. This item was therefore subsequently removed along with one item from each of the external, identified, and intrinsic regulation sub-scales, reducing item numbers from six to five in each subscale. This resulted in an improved fit of the model with factor loadings ranging from 0.34 to 0.88. However, subsequent factor analysis resulted in a 15-item, four factor model with acceptable goodness of fit indices Satorra-Bentler Scaled Chi Square = 184.16, $df = 84$, $p < .001$, GFI = 0.90, RMSEA = 0.07, NNFI = 0.91. Furthermore, the subscales demonstrated acceptable internal consistency (external = 0.789, introjected = 0.763, identified = 0.786, intrinsic = 0.903).

The second study was conducted to validate the findings from the initial development of the BREQ in the first study. Consequently, the 15-item, four factor measure was administered among a second sample of participants ($N = 310$; 155 female, 155 males) that constituted part of a larger study (Mullen & Markland, 1997) examining relationships between the BREQ and the transtheoretical model of behavioural change (Prochaska & DiClemente, 1984). The fit of the final model was acceptable and the resultant goodness of fit indices reflected those found in the first study (Satorra-Bentler Scaled Chi Square = 172.93, $df = 84$, GFI = 0.91, NNFI = 0.92, RMSEA = 0.07). Furthermore, the pattern of intercorrelations found between the subscales reflected an underlying continuum rather than an underlying dichotomy on intrinsic and extrinsic motivation thus offering some support for the construct validity of the BREQ (Mullan, Markland, & Ingledew, 1997).

However, analysis of the introjected regulation subscale identified two latent variables suggesting two distinct components, namely regulation by guilt-avoidance and the internalisation of exercise as a necessary effort. As reflected by the authors, there appears to be disparity in operational definitions among current constructs measuring behavioural regulation that highlights the need for rigorous definition (Mullan et al., 1997). In addition, the removal of the amotivation scale was deemed necessary among a sample of experienced exercisers. Amotivated reasons for exercise such as “I think exercising is a waste of time” is unlikely to be applicable for exercisers who choose to maintain a regular regime. However, this item was initially derived from academic domains (Vallerand et al., 1992) in which attendance are an external requirement. Therefore, amotivation is more likely to arise among those individuals who perceive a sense of incompetence to achieve a desired outcome or because of some rigid authority insisting upon continued participation to attain that outcome (Deci & Ryan, 1991). Therefore, the inclusion of the amotivation subscale may be important in other contexts and as such has been included in a second version of the instrument, called the BREQ-2 (Markland & Tobin, in press; Mullan et al., 1997). Confirmatory factor analysis for this measure has reported good fit indices (Satorra-Bentler Scaled Chi Square = 136.49, $df = 125$, $p = .23$; RMSEA = .02, 90% CI = .00 -.04; CFI = .95; NNFI = .94; SRMR = .05) suggesting the feasibility for the inclusion of amotivation (Markland & Tobin, in press).

As the varying forms of motivation are posited to lie on a continuum from high to low self-determination, and because self-determination is associated with enhanced psychological functioning (Deci, 1980; Deci & Ryan, 1985), a corresponding pattern of consequences might be expected. Specifically, varying types of motivation are associated with increasingly positive consequences the more individuals progress from amotivation to intrinsic motivation.

For example, within the context of sport, a study by Pelletier, Briere, Blais, & Vallerand (1988) revealed that athletes perception of autonomy were positively associated with more self-determined forms of motivation while athletes who perceived a lack of autonomy reported less self-determined forms of motivation (i.e., external regulation, amotivation). In addition, the various self-determined forms of motivation (including three types of IM and identification) have been found to be associated with greater persistence (Pelletier, Briere, Blais, & Vallerand, 1988), positive emotions (Vallerand & Briere, 1990), and greater sport interest and satisfaction (Briere, et al., 1995).

Conversely, amotivation was found to be negatively correlated with interest and satisfaction in school among college-age students (Vallerand, Blais, Briere, & Pelletier, 1989). For example, validation studies for the French version of the Sport Motivation Scale (SMS; Briere et al., 1995) correlated the seven types of motivation with differing positive and negative emotions in sport. In general, results revealed that while positive affect in sport was positively associated with the three types of intrinsic motivation and identified regulation, anxiety was positively related to amotivation and external regulation. Similar results were found using the English version of the SMS (Pelletier et al., 1995).

These results suggest that those individuals participating in sport for self – determined reasons are more likely to experience more positive affect than those individuals participating for less self-determined motives. Individuals participating in sport for less self-determined reasons are more likely to experience greater negative affect and less positive emotions. Therefore, although it would seem that intrinsic motivation is

diminished among externally motivated individuals, non-intrinsically motivated individuals still require motivation to complete their actions (Ryan & Deci, 2000). However, the negative affect experienced may not be conducive to continuing participation.

Furthermore, individuals' motivational orientations are likely to vary from one specific context to another (Vallerand, 2001). For example, individuals' perceptions of autonomy and competence are psychological mediators of the influence of social events. Social factors that are perceived as supporting autonomy and competence will positively influence motivation whereas factors that negatively influence perceptions of autonomy and competence will be more likely to undermine motivation (Vallerand, 2001). For example, within sport, competitive outcomes represent important social factors in sport. Specifically, the focus of this context is on beating the opposition rather than on the task of performing well. In this way, individuals may feel less autonomous in their actions if they are participating in practice sessions for a specific outcome that is reinforced by significant others. For example, a forthcoming competition that is emphasised by the coach and is in contrast to a preferred goal to participate for skill enhancement. In a similar vein, competition may lead individuals to focus on others' performance which could undermine their ability if perceiving an unfavourable comparison. Theorists (Ames, 1992; Duda, 1989; Dweck, 1986; Nicholls, 1984) suggest that a shift in focus from task involvement towards a more self-pride focus undermines intrinsic interest. Therefore, the social context of competition may influence individuals' motivation through changes in perceptions of autonomy and competence.

However, task and ego goals are considered to reflect the personal meaning of achievement to the athlete (Maehr & Braskamp, 1986). Individual differences in dispositional achievement goals are a critical determinant of cognitions, affect and behaviour in sport. Therefore, if differences in dispositional tendencies influence social factors (e.g., success, failure) it would seem feasible to suggest that individual differences in perfectionism will also influence perceptions of autonomy and competence within certain contexts. Furthermore, with neurotic perfectionists more likely to engage in maladaptive cognitions (Coen & Ogles, 1993; Frost & Henderson, 1991) which constitute a threat to self-worth and contribute to state anxiety, it seems likely that this dimension of perfectionism is related to a lack of self-determination. Therefore, in order to predict and explain contextual motivation with more precision, it is vital that exercise assessment assesses situational, contextual, and global levels, using appropriate measures (Vallerand, 1997, 2001).

Purpose

Intrinsic motivation has been accepted as an important construct for continued exercise adherence. It is evident from the educational and sport literature that a more self-determined approach to exercise is more likely to arise from feelings of autonomy and competence (Markland, 1999). However, as some exercisers are unlikely to participate purely for the intrinsic reasons of enjoyment, others are likely to seek out control to regulate their behavioural participation (Deci & Ryan, 1985). Therefore, individual differences in motivational orientations could be said to exist on a continuum ranging from completely self-determined to non-self-determined behaviour (Deci & Ryan, 1990; Deci, et al., 1991).

With research (Briere et al., 1995; Mullan et al., 1997; Pelletier et al., 1995; Vallerand & Losier, 1999) only recently beginning to explore self-determination and its influence on affective responses (Pelletier et al., 1995; Vallerand et al., 1989) within sport and exercise settings and the suggestion that "...the complex inter-relationship between intrinsic motivation, perceptions of control and autonomy, and extrinsic rewards remains to be fully tested in exercise settings" (Biddle & Mutrie, 2002, p. 74); it would seem justifiable to investigate the influence of individual differences in motivational orientations among perfectionists and the influence this will have on social physique anxiety and affective responses.

Those exercisers who experience SPA and engage in maladaptive behavioural strategies such as avoidance of exercise settings (Spink, 1992) appear to lack the self-determination to engage in regular exercise regimes. This may be as a result of individual differences in perfectionism (Hasse et al., 2002). As socially prescribed perfectionism has been the dimension most related to SPA among exercisers (Hall et al., 2002), this negative affect may be a consequence of a lack of autonomy and coping resources such as perceived competence, due to perceptions of threat to meet others' unrealistically high performance standards. Furthermore, exposure to controlling feedback in the form of others' expectations and standards tends to undermine an individual's sense of self-determination (Deci & Ryan, 1985; Flett et al., 1996). Furthermore, past research has suggested that a focus on social comparison and an external motivational orientation can result in higher levels of cognitive anxiety and perceived threat among perfectionists (Hall, et al., 1998). Therefore it is likely that an external motivational orientation among perfectionistic physique anxious individuals will in turn influence threat and reduce overall enjoyment.

In contrast, self-oriented perfectionism has been hypothesised to be related to a more intrinsic orientation and has also been found to be unrelated to SPA (Hall et al.,

2002). However, as perfectionists appear to have a contingent sense of self in that personal accomplishments are important, it is unclear whether this dimension of perfectionism will be more related to an intrinsic orientation or an extrinsic orientation. Therefore, the purpose of this study was to determine the influence of individual differences in perfectionism on levels of self-determination, SPA, threat, and enjoyment. Furthermore, as research has established the importance of perceived competence and an internal locus of causality as contributors of intrinsic motivation and therefore a more self-determined approach to exercise (Deci et al., 1991; Markland, 1997), the mediational role of perceived competence and autonomy will be explored.

Hypotheses

Based on the aforementioned research it was hypothesised that:

- H1 Self-oriented perfectionism would negatively influence levels of self-determination, SPA, threat, and enjoyment through the mediational role of confidence and autonomy.
- H2 Socially prescribed perfectionism would negatively influence levels of self-determination, SPA, threat, and enjoyment through the mediational role of competence and autonomy.

In order to investigate the above hypotheses, path analysis was employed using structural equation modelling procedures to examine the variables of interest. The path analysis examined the relationship between self-oriented perfectionism (SOP), socially prescribed perfectionism (SPP), indices of self-determination including intrinsic motivation, identified regulation, introjected regulation, external regulation, and amotivation and SPA, threat, and enjoyment.

In addition, the mediational role of confidence (perceived ability, capacity beliefs, self-efficacy), and locus of causality were examined. The answers to the hypothesised relationships will allow researchers and practitioners to consider the importance of individual differences in motivational orientations among perfectionists and its influence on physique anxious exercisers. This will further researchers understanding of the psychological processes underpinning SPA. In turn, this will have implications for the fostering of adaptive motivational strategies to ensure reduced physique anxiety and therefore increased enjoyment and continuing adherence.

According to Lazarus (1999), a particular situation needs to be perceived as important to an individual before they can feel threatened. Therefore, this study included only those exercisers who perceive that being good at exercise is highly important to them. For the present study, only those participants scoring 5 or above on the two perceived importance scales (2 items on a 7-point Likert type scale) were included in the analysis. Furthermore, the constructs of ability, capacity beliefs, and self-efficacy were combined into one latent factor, *confidence*, as they were deemed to be conceptually similar and more accurately reflected confidence in exercise settings (McAuley et al., 2002).

CHAPTER 5
METHOD AND RESULTS

Methodology

Participants

The participants for this study ($N=218$) were healthy adult exercise participants (192 Females, 26 Males), aged between 15 and 68 years old ($M=38.5$, $SD=13.5$) who perceived being good at exercise as important. The participants were predominantly involved in exercise fitness classes for beginners or were involved in one star rating classes described as *suitable for newcomers and those who enjoy a low intensity workout*. The classes lasted 45-60 minutes in duration. Approximately 54% of the present sample ($n=118$) reported having participated in moderate activities regularly (2-3 times per week) and had been exercising for more than 6 months. In contrast, 75 participants exercised regularly and had started within the last 6 months, 13 participants had exercised at some point in the past 6 months, although not recently, while 5 participants either currently did not participate in regular activity but planned to do so at some time in the future. Participants were from several health clubs and fitness venues in Southeast England.

Prior to data analysis, missing values were identified and clarified as randomly scattered and therefore replaced with values reflecting the participants mean score on the particular measure. This is an acceptable, conservative procedure as the mean for the distribution as a whole does not change (Tabachnick & Fidell, 1996). Furthermore, the individuals mean score on the scale was chosen instead of a group mean as this was thought to more accurately reflect the individuals' likely score without the researcher guessing or basing the response on the rest of the group's responses.

Measures

In addition to the measures used in Study 1 (SPAS, Hart et al., 1986; MPS-H, Hewitt & Flett, 1991; perceived ability, Eccles & Harold, 1991; importance, Hall & Kerr, 1997; capacity beliefs, Dawson et al., 2000; self-efficacy, Bandura, 1977, 1986; Garcia & King, 1991; EMAS-P, Endler et al., 1991; PACES, Kendzierski & DeCarlo, 1991), two additional measures were further utilised (see appendices J to T for informed consent letter and questionnaires).

The Locus of Causality for Exercise Scale

This measure (LCE; Markland & Hardy, 1997) is a three-item scale that is designed to assess the extent to which individuals feel that they choose to exercise rather than feeling that they must exercise for some reason. In this way, the LCE construct is specifically concerned about the source of the initiation of the behaviour (e.g., I exercise because I like to rather than because I feel I have to).

Responses to this measure are scored on a 7-point Likert-type scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Higher scores indicate greater self-determination or a more perceived internal locus of causality whereas lower scores represent lower levels of self-determination or a perceived external locus of causality. Studies using the LCE among samples of regular exercisers (Markland, 1999; Markland & Hardy, 1997) have reported alpha reliability coefficients of .87 and .83 and .82 respectively.

The Behavioural Regulation in Exercise Questionnaire

This questionnaire (BREQ-2; Markland & Tobin, in press; Mullan, Markland, & Ingledew, 1997) was based on the conceptualisations of Deci and Ryan's (1985, 1990) continuum of extrinsic and intrinsic motivation. Specifically, the BREQ-2 was designed to

measure external regulation (e.g., I exercise because others say I should), introjected regulation (e.g., I feel guilty when I don't exercise), identified regulation (e.g., I value the benefits of exercise), intrinsic regulation (e.g., I exercise because it's fun), and amotivation (e.g., I don't see why I should have to exercise). Individuals are asked to respond to 19 items on a 5-point Likert-type scale from 0 (Not true for me) to 4 (Very true for me). This measure will be used in the present research to reflect a multidimensional instrument giving separate scores for each subscale. Higher scores on each subscale are reflective of higher levels of the indices of motivation the particular subscale is measuring.

Furthermore, although the construct of amotivation (Mullan et al., 1997) has revealed high levels of skewness and were subsequently dropped during preliminary analysis of the BREQ, the authors recognised that this dimension of motivation is likely to be worth exploring among different samples (Markland & Tobin, in press). As SPP has been hypothesised to be related to amotivation, this dimension was included in the present study. Although this measure has not yet undergone any published psychometric testing there is evidence for a reliable instrument (.79, .76, .77, and .90 for external regulation, introjected regulation, identified regulation, and intrinsic regulation, respectively) with the removal of one subscale (amotivation).

Procedures

After receiving permission from both exercise club managers and exercise class instructors, exercise class participants were requested to take part in a study designed to gain a better understanding of exercise motivation. Participants were told that their participation in the study was voluntary and that responses would remain anonymous. Questionnaires were individually administered by the researcher to the participants after the exercise sessions and required 10 to 15 minutes to complete. On several occasions fitness

instructors assisted the researcher in administering the questionnaires to exercise class participants, which were then collected by the researcher on completion. The participants were reminded that their responses were specific to the exercise class they had just completed and were encouraged to ask the researcher about any questions that arose during administration of the questionnaire.

Results

Descriptive Statistics and Scale Reliabilities

Table 6 below depicts the alpha reliabilities, means, standard deviations, and correlations, for each of the 15 variables of interest: social physique anxiety, self-oriented perfectionism, socially prescribed perfectionism, ability, importance (excluding reliability alpha), capacity beliefs, self-efficacy, locus of causality, intrinsic regulation, identified regulation, introjected regulation, external regulation, amotivation, threat (excluding reliability alpha), and enjoyment. From Table 5 it can be seen that all reliability coefficients (the diagonal of the correlation matrix) revealed adequate internal consistency (Nunnally, 1978).

Table 5. Study 2. Intercorrelations, Reliability Coefficients, Means, and Standard Deviations of the Measures of Social Physique Anxiety, Self-Oriented Perfectionism, Socially Prescribed Perfectionism, Locus of Causality, Intrinsic Regulation, Identified Regulation, Introjected Regulation, External Regulation, Amotivation, Perceived Ability, Importance, Capacity Beliefs, Self-efficacy, Perceived Threat, and Enjoyment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 SPA	.87														
2 SOP	-.00	.86													
3 SPP	.20**	.48**	.83												
4 LOC	-.37**	.06	-.19**	.87											
5 Amotivation	.13	-.05	.25**	-.35**	.80										
6 External Regulation	.16*	.02	.39**	-.33**	.60**	.83									
7 Introjected Regulation	.15*	.31**	.26**	-.10	.10	.27**	.73								
8 Identified Regulation	-.15*	.21**	-.09	.37**	-.56**	-.35**	.20**	.76							
9 Intrinsic Regulation	-.25*	.15*	-.13	.66**	-.47**	-.33**	.03	.69**	.91						
10 Ability	-.42**	.17*	-.11	.46**	-.29**	-.21**	.11	.38**	.46**	.91					
11 Importance	-.14*	.33**	-.00	.31**	-.09	-.04	.32**	.36**	.30*	.46**	-				
12 Capacity Beliefs	-.23**	.14*	-.15	.37**	-.40**	-.31**	.10	.45**	.49**	.60**	.29**	.93			
13 Self-Efficacy	-.24**	.16*	-.17	.40**	-.33**	-.28**	.06	.43**	.50**	.58**	.34**	.81**	.94		
14 Threat	.22**	.17*	.26**	-.14*	.16*	.26**	.19**	-.11	-.11	-.11	.10	-.28**	-.25**	-	
15 Enjoyment	-.09	.04	-.15*	.39**	-.23**	-.23**	.05	.31**	.44**	.28**	.21**	.38**	.43**	-.20**	.92
Means	3.15	4.37	3.48	4.9	1.4	1.6	2.85	4.03	4.01	4.57	5.15	8.86	7.57	2.00	5.62
Standard Deviations	8.8	14.20	13.08	5.13	2.63	3.14	3.24	3.09	3.90	3.06	2.19	18.51	30.35	1.93	21.72

* $p < .05$, ** $p < .01$, *Note.* $N = 218$. SPA = social physique anxiety; SOP = self oriented perfectionism; SPP = socially prescribed perfectionism. LOC = locus of causality. Correlations are presented below the diagonal and alpha coefficients are presented in bold on the diagonal.

An examination of the means revealed that the present sample scored above the midpoint on 11 of the 15 scales including SPA (3.15 on a 5-point scale), SOP (4.37 on a 7-point scale), ability (4.85 on a 7-point scale), locus of causality (4.8 on a 7-point scale), introjected regulation (2.85 on a 5-point scale), identified regulation (4.03 on a 5-point scale), intrinsic regulation (4.01 on a 5-point scale), importance (5.15 on a 7-point scale), capacity beliefs (8.86 on a scale of 0% to 100%; i.e., 11-point scale), self-efficacy (7.57 on a scale of 0% to 100%), ability (4.57 on a 7-point scale), and enjoyment (5.62 on a 7-point scale). The following means for the socially prescribed perfectionism scale was below the midpoint (3.48 on a 7-point scale) as was perceived threat (2.00 on a 5-point scale), amotivation (1.4 on a 5-point scale), and external regulation (1.6 on a 5-point scale). It would therefore seem that the present sample was slightly physique anxious and higher in self-oriented perfectionism than socially prescribed perfectionism. In addition, they were extremely confident, perceived being good at exercise as important, had a high internal locus of causality and were extremely self-determined in their approach to exercise.

Bivariate Relationships

Pearson's Product-Moment correlation analyses were performed to determine the bivariate relationships among the fifteen variables of interest. Results revealed that SPA was significantly and positively related to SPP, external regulation, introjected regulation, and threat as might be expected. In contrast, SPA was found to be significantly and negatively associated with identified regulation, intrinsic motivation, ability, importance, capacity beliefs, and self-efficacy. Although SPA was further found to be negatively correlated with enjoyment this result was not significant.

SOP was found to be significantly and positively correlated with integrated regulation, identified regulation, intrinsic regulation, ability, importance, capacity beliefs, self-esteem, and as might be expected perceived threat. Furthermore, SPP was found to be

significantly and positively correlated with the constructs of amotivation, extrinsic regulation, introjected regulation, and threat. In contrast, SPP was significantly and negatively correlated with capacity beliefs, self-efficacy, and overall levels of enjoyment. Furthermore, locus of causality (individuals perceived more autonomy than control) was found to be significantly and positively related with identified regulation, intrinsic regulation, ability, importance, capacity beliefs, self-efficacy, and enjoyment. Whereas it was negatively and significantly correlated with SPA, SPP, amotivation, external regulation, and threat as would be expected. Overall, the results from the bivariate analysis provide support for the notion that both SPP is related to a perceived external locus of causality and partial support that SOP was positively related to a more internal perceived locus of causality although this was not significant.

Path Analysis

Prior to assessing the fit of the model, the univariate and multivariate normality of all 15 variables were examined. Results revealed the presence of univariate normality for only 5 of the 15 variables (social physique anxiety, self-oriented perfectionism, socially prescribed perfectionism, intrinsic regulation, and ability) while the other 10 variables (locus of causality, amotivation, external regulation, identified regulation, intrinsic regulation, importance, capacity beliefs, self-esteem, threat, and enjoyment) were non-normal as indicated by the values of skewness (values ranged from -4.85 to 11.94) and kurtosis (values ranged from -0.29 to 12.29). In order to adjust for non-normality, potential outliers were identified and several procedures used in order to try and reduce their influence. Firstly, the raw data was checked for incorrect data entry values and missing values. Secondly, outliers were identified with reference to observation of box plots. Those observations that fell outside the box plots were checked to ensure that the participant number raw data identified were cases from the intended population

(Tabachnick & Fidell, 1996; West, Finch, & Curran, 1995). In turn, no outliers were removed (N=218) and the data were analysed with normal theory ML estimation with the 'Robust' statistics option.

In order to assess the adequacy of the model fit, it was necessary to examine the fit indices produced by EQS. Furthermore, as the presence of a non-normal sample was evident in the present research, estimation techniques that made adjustments for non-normal samples were used (discussed below; West, Finch, & Curran, 1995). Consequently, four fit indices will be reported that consider the goodness of fit between the model and the data (Hoyle and Panter, 1995). This will include two absolute fit indices, the Satorra-Bentler scaled chi-square, the unadjusted chi-square value, and two indices of incremental fit the Bentler-Bonnett nonnormed fit index (BBNNFI) and Bentler's Robust comparative fit index (Robust CFI).

The variables of interest in the path analysis below, included, social physique anxiety (SPA), self-oriented perfectionism (SOP), socially-prescribed perfectionism (SPP), locus of control (L of C), amotivation, external regulation, introjected regulation, identified regulation, intrinsic regulation, ability, capacity beliefs, self-efficacy, threat, and enjoyment. In addition, the present sample consisted of exercisers who perceived being good at exercise as important (N=218).

In the analysis it was assumed that firstly, self-oriented perfectionism and socially prescribed perfectionism were related. Based on the hypothesising of motivational orientations among perfectionists (e.g., Flett et al., 1995; Hewitt & Flett, 1991) it was also assumed that both dimensions of perfectionism would be related to a more or less self-

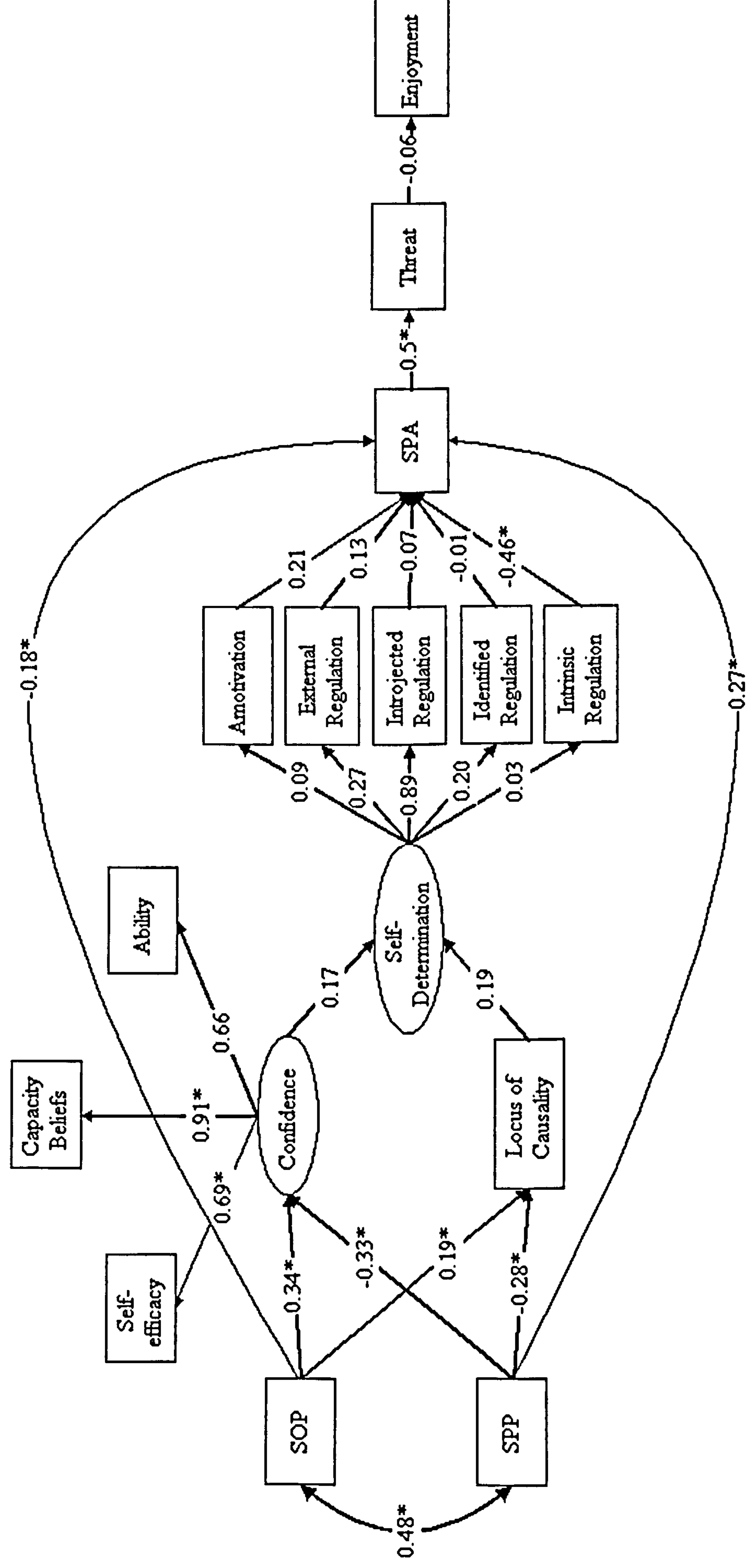
determined approach to exercise. However, as self-determination is influenced by levels of autonomy and competence the influence of perfectionism on self-determination would be mediated by locus of causality and confidence (Deci & Ryan, 1985). Based on the research into self-determination and affective consequences (Briere, et al., 1995; Vallerand & Briere, 1990) it was further assumed that the various indices of self-determination would in turn influence SPA that in turn would directly influence threat (Lazarus, 1999). Finally threat would directly influence enjoyment.

The largest standardised residuals scores for the variables of interest ranged from – 0.58 and +0.67 and were distributed between -0.5 and +0.5. The robust estimation method that addresses non-normality was employed to estimate the model (West, Finch, & Curran, 1995). Multivariate normality was estimated by the Mardia's normalised estimate (33.8). S-B Scaled χ^2 [67, N = 218] = 793.19, p = 0.00, (Satorra & Bentler, 1988), χ^2 = 925.38, BBNNFI = 0.28, Robust CFI = 0.27. The observed scaled chi-square statistic is significant (a non-significant chi-square is preferred) and suggests that the sample data is a poor fit of the hypothesised model. However, if the chi-square statistic is less than two times the reported degrees of freedom then this suggests an adequate fit of the model to the data (Tabachnick & Fidell, 1996). In this instance, the ratio of chi-square to the degrees of freedom is far greater than two suggesting that the data does not fit the proposed model. The BBNNFI and the Robust CFI index values are both well below the minimum standard (0.9) suggesting a very poor fit of the model. In summary, the results of the overall fit indices indicate a poor fit of the proposed model.

The final structural model presented in Figure 4 below, reveals that self-oriented perfectionism and socially prescribed perfectionism were significantly and positively related. Self-oriented perfectionism in turn significantly and positively influenced confidence and locus of causality. In contrast, SPP significantly and negatively influenced

confidence and locus of causality. In turn, both confidence and locus of causality positively influenced indices of self-determination. In turn, the 3 of the 5 indices of self-determination (amotivation, external regulation, and introjected regulation) positively influenced SPA. In contrast, identified regulation negatively influenced SPA while intrinsic regulation significantly and negatively influenced SPA. In turn, SPA significantly and positively influenced threat, while this in turn negatively influenced enjoyment. Furthermore, it can be seen that while SOP is significantly and negatively related to SPA, SPP is significantly and positively related with SPA.

Figure 4. Path analysis for Model 1



Note. N =218. SPA = social physique anxiety; SOP = self oriented perfectionism; SPP = socially prescribed perfectionism

CHAPTER 6
DISCUSSION

Discussion

Model 1 was tested in an attempt to explain the relationship between perfectionism, locus of control, confidence, indices of self-determination (amotivation, external regulation, introjected regulation, identified regulation, and intrinsic regulation), social physique anxiety, threat, and enjoyment among exercise class participants who perceived being good at exercise as important. It was hypothesised that (H1) self-oriented perfectionism would negatively influence levels of self-determination, SPA, threat, and enjoyment through the mediational role of confidence and autonomy, and (H2) socially prescribed perfectionism would negatively influence lower levels of self-determination, SPA, threat, and enjoyment through the mediational role of competence and autonomy. The results of the path analysis provide little support for these hypotheses due to a lack of model fit.

However, the findings of these analyses revealed that SOP is significantly and negatively related to SPA, while SPP is significantly and positively related with SPA. Based on the findings of Hall and Wigmore, (2001) and Hasse et al., (2002), these findings are in the expected direction. Clearly, appraising the exercise setting as highly evaluative (Katula et al., 1998) is debilitating for the exerciser who frames the meaning of their exercise experience in a normative manner (SPP). As the results of the path analysis further revealed, SPA was indeed significantly related to threat. However, the relationship between threat and enjoyment was not significant. Overall, these findings could not be supported due to the lack of the model fit indices.

In an attempt to address the perfectionism research that hypothesises the construct of SOP as an adaptive disposition (e.g., Blankenstein & Dunkley, 2000; Flett, Hewitt, Blankenstein, & Mosher, 1995; Flett, Hewitt, Blankenstein, & Dynin, 1994; Rice, Ashby,

& Slaney, 1998; Terry-Short et al., 1995), its influence on indices of self-determination were examined. However, as self-determination is further influenced by individuals' perceptions of competence and autonomy (Deci & Ryan, 1991; Deci et al., 1991) the influence of SOP on indices of self-determination were examined through the mediational role of these constructs.

Results of the path analysis revealed that SOP was significantly and positively related to confidence (ability, capacity beliefs, self-efficacy). Perceptions of ability to cope with a situation are said to be a function of secondary appraisal characteristics (e.g., Lazarus & Folkman, 1984). Research has revealed that self-oriented perfectionists on occasion engage in adaptive coping strategies (Flett et al., 1996; Flett, Russo, & Hewitt, 1994) but also engage in maladaptive coping (Hewitt, Flett, & Endler, 1995). However, as SOP is correlated with Positive Achievement Striving (Frost et al., 1993) and the dimension of Personal Standards (Frost et al., 1990), the positive influence of SOP on confidence was in the expected direction although little can be gleaned from these findings due to the lack of support from the fit indices.

The results further revealed that SOP was significantly and positively related with locus of causality. This result is in the expected direction as the descriptive statistics revealed that higher scores on the dimension of locus of causality indicated a more *internal* perceived locus of causality. This might suggest that self-oriented perfectionists indeed perceive they are exercising of their own volition with no sense of coercion. As perception of choice is a central feature of more self-determined behaviour (Deci & Ryan, 1985) and arguably may be equally as important as perceptions of competence in some exercise settings (Fox, 1977) it would be expected that the relationship between SOP and competence and SOP and locus of causality in turn influenced a more self-determined approach to exercise.

In contrast to SOP, the results further revealed that SPP was significantly and negatively related to overall confidence. The directions of these relationships suggest that this is in alignment with the perfectionism research and the theoretical stance proposed by Lazarus and Folkman (1984). Research has revealed that this dimension of perfectionism is most related to evaluative concerns and lower perceived self-efficacy to cope with stressful situations or to the satisfaction of others (Flett, et al., 1996). Furthermore, as SPP is the dimension most associated with ineffective problem-solving responses to certain situations, this maladaptive orientation is more likely to impair their ability to cope with the situation at hand (Butler & Meichenbaum, 1980; Flett et al., 1994; Flett et al., 1996; D’Zurilla & Goldfried, 1971; Hewitt, Blankenstein et al., 1996) resulting in a hopelessness orientation. Therefore, in terms of secondary appraisal of personal resources, these perfectionists may have lower perceived confidence levels perhaps about their inability to cope with the situation to the satisfaction of others (Dunkley, Blankenstein, et al., 2000; Flett, Hewitt, Blankenstein et al., 1996). Therefore, the results found in the present study were as expected although could not be fully supported.

The model further indicated that SPP was found to be significantly and negatively related with locus of causality. As the descriptive statistics revealed a more internal perceived locus of causality for the present sample, this result suggests that the SPP indeed perceives that their actions are not their own and thus are likely to have a more external perceived locus of causality. In addition, the relationship between both confidence and locus of causality and all 5 indices of self-determination (amotivation, external regulation, integrated regulation, identified regulation, and intrinsic regulation) were non significant. With both dimensions of perfectionism being associated with the setting of excessively high personal standards (Burns, 1980; Pacht, 1984) and therefore a contingent self-worth (Deci & Ryan, 1995), a greater influence on an extrinsic motivational orientation and

amotivation might have been expected. However, the mediational role of autonomy and confidence may have counteracted this influence on a less self-determined approach to exercise. Therefore, introjected regulation could be said to reflect both aspects of self-oriented perfectionism via the mediational role of confidence and locus of causality, namely a contingent self-worth with self-imposed standards. A better fit of the model to the data would have supported these results.

The results of the path analysis revealed that only intrinsic regulation significantly and negatively influenced SPA. This suggests that social physique anxiety is underpinned by a lack of intrinsic motivation which has potential implications for continuing exercise participation. Intrinsically motivated individuals are not involved in an activity for some end result (e.g., weight loss) but rather, participate for reasons of enjoyment and satisfaction and are truly self-determined in their actions. As intrinsic motivation and thus enjoyment has been found to be conducive to continuing exercise participation (Kendzierski & DeCarlo, 1991), this result suggests the likelihood of exercise withdrawal. Overall, SPA was found to positively influence threat as might be expected from the lack of influence of intrinsic motivation, while no significant relationship was found between threat and enjoyment. The lack of model fit suggests hypotheses H1 and H2 cannot be supported.

Conclusions

Although most of the relationships in this study were in the expected direction the results of this research provided little support for the hypothesised relationships found due to the extremely poor fit of the model to the data. Therefore, little can be concluded. However, the psychological mechanisms underpinning SPA were investigated within a

sound theoretical model which serves to advance the present literature describing the correlates and consequences of this widely researched concept.

Limitations

It is important to consider the limitations of this study. First, the sample size for this model ($N = 218$) is relatively small. According to Bentler (1995) a recommended 5:1 ratio of sample size to the number of parameters to be estimated is required to produce stable results. This study perhaps would have benefited from a larger sample. Secondly, there are limitations in terms of testing mediating effects. To provide stronger evidence of mediation, an independent assessment of the impact of both SOP and SPP on the variables of interest (self-determination, SPA, threat, enjoyment) is required (Baron & Kenny, 1986). Only when this is done can the link between individual differences in perfectionism and the aforementioned variables be established. This also might further lead to improvement of the fit of the model. However, although these additional paths were included in the model and tested (although not reported), the results remained similar to those reported in this study. Another strategy used to increase model fit are post-hoc modifications. One example of this is the Wald test (Hoyle & Panter, 1995; Tabachnik & Fidel, 1996). This test suggests the removal of specified paths in order to improve model fit. However, as this test is based on statistical and not substantive criteria, this method was not adopted in the present study. The third limitation may be the use of composite scores rather than fully latent variables. Composite scores were included in the model (confidence, self-determination) as it was deemed to take into account possible multicollinearity between the variables of interest (Tabachnick and Fidell, 1996). However, with composite variables, correlations are inclined to become inflated and should not be over interpreted (Tabachnick

and Fidell, 1996). However, with the relatively low correlations found, this last point need not be a cause for concern.

In addition, the present sample consisted of both experienced and inexperienced exercisers. Although 93 out of 218 participants in this study were deemed relatively inexperienced exercisers, the majority still reported having exercised regularly for at least 6 months. This further highlights the difficulty of gaining access to beginners who will likely experience more evaluative threat than experienced exercisers (Bandura, 1986; Lazarus, 1999). However, although the present sample gained access to predominantly beginners exercise classes or those individuals who had just joined the diet and fitness clubs there may have been some confusion in that although they were beginners to the appropriate classes, they may have already been participating in other forms of exercise. It is quite usual for individuals to explore other activities in order to alleviate potential boredom.

Future Research Directions

It is particularly important to investigate future research on this topic using beginner exercisers. As they appear to be difficult to target it would be useful to investigate the role of perfectionism on SPA among those exercisers who through local G.P. (general practitioner) referral schemes (Taylor, 1999) have been advised to exercise on the basis of their health. For those who *need* to exercise on the advice of their GPs it is vital they attend exercise classes that facilitate and structure the environment in such a way as to reduce perceptions of threat, particularly among those individuals with perfectionistic standards. Furthermore, exercise leaders could facilitate a more self-determined approach

to exercise through a focus on personal goal setting and tracking of exercisers personal improvement.

Furthermore, as perfectionistic exercisers may initially lack overall confidence and a lack of intrinsic interest in their participation, particularly if embarking upon an exercise regime for the first time, the facilitation of competence and autonomy would be important. For example, firstly, exercise leaders need to be aware of the impact that social comparison may have on perfectionistic individuals. By designing exercise programmes or instructing classes that continually focus on personal improvement rather than bringing attention to other exercisers accomplishments, would be one useful strategy to adopt. Secondly, by continually focusing on personal improvement an element of confidence could be facilitated. However, for those exercisers who perceive potential barriers to overcome lifestyle changes in order to attend classes, realistic scheduling and planning in order to attend other suitable classes could be suggested by the instructor. If several alternative modes of exercise at various times of the day are presented to exercisers, this could help overcome potential barriers while facilitating an element of choice and thus autonomy.

Furthermore, as SPA is prevalent amongst females, and physical activity is a necessary part of the school curriculum for younger females, it is possible that activities where the physique comes under scrutiny may influence physique related concerns. Furthermore, with SPP influencing a lack of perceived autonomy and ability, those adolescents concerned about appearance combined with a dislike of physical activity may resort to maladaptive behaviours (e.g., eating disorders; Hasse et al., 2002) in order to maintain an ideal appearance. Although the present study provides little evidence for the

influence of perfectionism and other mediating variables in the influence of SPA, the seriousness of these constructs warrants further investigation among differing samples.

Overall Conclusions of Study 1 and Study 2

With increasing evidence to suggest that a larger proportion of the nation is at risk of developing health problems related to sedentary lifestyles, the interest shown by governments and their agencies is not surprising. Numerous intervention strategies have been created including mass media campaigns and GP referral schemes that promote physical activity as a way of reducing morbidity and mortality. But in spite of the physiological and psychological benefits to be gained, adherence in regular exercise programs remains problematic with 20%-50% withdrawing within the first 6 months (Dishman, 1988; Robison & Rogers, 1994). Not surprisingly, health professionals have been interested in how to improve individuals' adherence.

One construct that has consistently emerged as contributing towards unpleasant exercise experiences and therefore potential withdrawal is social physique anxiety. However, despite the identification of the importance of this construct in influencing maladaptive exercise experiences, a lack of a conceptual approach has hampered our understanding. Therefore, this study attempted to identify important antecedents of SPA by adopting the theoretical formulation of Lazarus' conceptual approach to anxiety.

Specifically, the dispositional construct of perfectionism was explored and identified as having conceptual similarities with SPA. Therefore, according to contemporary perspectives of motivation, these constructs were further considered along

with secondary appraisal characteristics (capacity beliefs, confidence, and ability) that have been identified as having a significant influence on the cognitive appraisal process. Overall, Model 1 provided an adequate fit of the model to the data. Therefore, this model confirms the findings from Hall and Wigmore's study in that SPP is indeed a correlate of SPA. Furthermore, an extension of this study revealed that SPA in turn was negatively correlated with self-efficacy as would be expected. In turn both self-efficacy and capacity beliefs were found to be related to exercise enjoyment.

In addition to Study 1, Study 2 provided little support for the influence of individual differences in perfectionism on levels of self-determination, SPA, threat, and enjoyment via the mediational role of perceived competence and autonomy. However, similar to the findings of Study 1 the reported correlations found were in the expected direction. Overall, the importance of considering the influence of perfectionism on SPA within a sound theoretical framework as demonstrated in this research must be emphasised. If GP's are only just beginning to embark on exercise referral schemes then interventions strategies need to be established to ensure enjoyable exercise experiences. Although poor model fit indices warrants further examination of the proposed models, it may be vital to further consider individuals interpretations of the exercise environment. As perfectionism and SPA are inherent trait characteristics and therefore less likely to be amenable to change, the situational environment can be structured in a way that facilitates adaptive cognitions, affective responses, and therefore behavioural outcomes (Ames, 1992). Therefore, perfectionism could be considered a state construct as well as a trait. With little research to date having explored the influence of perfectionism on SPA in exercise contexts, much work still remains.

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Appendix A
Study 1
Informed Consent Letter

De Montfort University Bedford
Lansdowne Campus
37 Lansdowne Road
BEDFORD
MK40 2BZ

Telephone: (01234) 793416
Email: c_petherick@hotmail.com
Dear Exerciser,

Date

We would like to request your participation in a research project that is being conducted by Ms Caroline Petherick and Professor Howard Hall who are researchers in the School of Contemporary Studies at De Montfort University Bedford.

The research is investigating the thoughts and feelings experienced by exercise / aerobic class participants during their exercise sessions. This particular project is part of an ongoing investigation into exercise motivation. It is hoped that the information gained from this research will help further our understanding of exercisers' motivation.

The project has been authorised by the School of Contemporary Studies at De Montfort University and has received the support of Rosemary Conley. A report of the findings of this research will be made available to you on request, once the investigation has been completed.

Your responses to the questionnaire will be completely anonymous. However, we do request that you complete ALL of the questions. We would like to emphasise that your participation is completely voluntary and that you are free to withdraw consent at any time. If you are willing to take part, please sign the bottom of this consent form.

For further information about this project or your rights as a participant, you may call Caroline Petherick on 01234 793416 or via email at c_petherick@hotmail.com. We greatly appreciate your assistance with the project, and wish to thank-you for taking the time to help.

Sincerely

I understand the above information and give voluntary consent to participate in this investigation.

Signature:

Date:

Appendix B

Study 1

Social Physique Anxiety Scale

In exercise settings, some people feel concerned about their appearance. The following questions are seeking information about how you generally feel about your physique. There are no right or wrong answers. If you strongly disagree circle 1; if you strongly agree circle 7; if you feel somewhere in-between circle any one of the numbers between 1 and 7. If you feel neutral or undecided circle 4.

		Strongly Disagree			Neutral			Strongly Agree
A1	I am comfortable with the appearance of my physique/figure.	1	2	3	4	5	6	7
A2	I would never worry about wearing clothes that might make me look too thin or overweight.	1	2	3	4	5	6	7
A3	I wish I wasn't so uptight about my physique/figure.	1	2	3	4	5	6	7
A4	There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively.	1	2	3	4	5	6	7
A5	When I look in the mirror I feel good about my physique/figure.	1	2	3	4	5	6	7
A6	Unattractive features of my physique/figure make me nervous in certain social settings.	1	2	3	4	5	6	7
A7	In the presence of others, I feel apprehensive about my physique/figure.	1	2	3	4	5	6	7
A8	I am comfortable with how fit my body appears to others.	1	2	3	4	5	6	7
A9	It would make me uncomfortable to know others were evaluating my physique/figure.	1	2	3	4	5	6	7
A10	When it comes to displaying my physique/figure to others, I am a shy person.	1	2	3	4	5	6	7
A11	I usually feel relaxed when it is obvious that others are looking at my physique/figure.	1	2	3	4	5	6	7
A12	When in a bathing suit, I often feel nervous about the shape of my body.	1	2	3	4	5	6	7

Appendix C

Study 1

Multidimensional Perfectionism Scale

Listed below are a number of statements concerning personal characteristics and traits.
Read each item and circle the extent to which you agree or disagree with each item.

		Strongly Disagree			Neutral			Strongly Agree
B1	When I am working on something, I cannot relax until it is perfect.	1	2	3	4	5	6	7
B2	I find it difficult to meet others' expectations of me.	1	2	3	4	5	6	7
B3	One of my goals is to be perfect in everything I do.	1	2	3	4	5	6	7
B4	I never aim for perfection in my work.	1	2	3	4	5	6	7
B5	Those around me readily accept that I can make mistakes too.	1	2	3	4	5	6	7
B6	The better I do, the better I am expected to do.	1	2	3	4	5	6	7
B7	I seldom feel the need to be perfect.	1	2	3	4	5	6	7
B8	Anything that I do that is less than excellent will be seen as poor work by those around me.	1	2	3	4	5	6	7
B9	I strive to be as perfect as I can be.	1	2	3	4	5	6	7
B10	It is very important that I am perfect in everything I attempt.	1	2	3	4	5	6	7
B11	I strive to be the best at everything I do.	1	2	3	4	5	6	7
B12	The people around me expect me to succeed at everything I do.	1	2	3	4	5	6	7
B13	I demand nothing less than perfectionism of myself.	1	2	3	4	5	6	7
B14	Others will like me even if I don't excel at everything.	1	2	3	4	5	6	7
B15	It makes me uneasy to see an error in my work.	1	2	3	4	5	6	7
B16	Success means that I must work even harder to please others.	1	2	3	4	5	6	7
B17	I am perfectionistic in setting my goals.	1	2	3	4	5	6	7
B18	Others think I am okay, even when I do not succeed.	1	2	3	4	5	6	7

		Strongly Disagree			Neutral			Strongly Agree	
B19	I feel that other people are too demanding of me.	1	2	3	4	5	6	7	
B20	I must work to my full potential at all times.	1	2	3	4	5	6	7	
B21	Although they may not show it, other's get very upset with me when I slip up.	1	2	3	4	5	6	7	
B22	I do not have to be the best at whatever I do.	1	2	3	4	5	6	7	
B23	My family expects me to be perfect.	1	2	3	4	5	6	7	
B24	I do not have very high goals for myself.	1	2	3	4	5	6	7	
B25	My parents rarely expect me to excel in all aspects of my life.	1	2	3	4	5	6	7	
B26	People expect nothing less than perfection from me.	1	2	3	4	5	6	7	
B27	I set very high standards for myself.	1	2	3	4	5	6	7	
B28	People expect more from me than I am capable of giving.	1	2	3	4	5	6	7	
B29	I must always be successful in everything I do.	1	2	3	4	5	6	7	
B30	People around me think that I am still competent even if I make a mistake.	1	2	3	4	5	6	7	

Appendix D

Study 1

Perceived Ability Scale

C1 In general, how would you rate your ability at physical activity and exercise?

Very Poor 1	Poor 2	Not Very Good 3	Average 4	Good 5	Very Good 6	Excellent 7
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C2 Compared with others in your exercise class, how good are you at physical activity and exercise?

Very Poor 1	Poor 2	Not Very Good 3	Average 4	Good 5	Very Good 6	Excellent 7
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C3 Compared with others your age, how good are you at physical activity and exercise?

Very Poor 1	Poor 2	Not Very Good 3	Average 4	Good 5	Very Good 6	Excellent 7
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Appendix E

Study 1

Perceived Importance Scale

For me, being good at physical activity and exercise is:

Extremely Unimportant	Unimportant	Slightly Unimportant	Neither important nor unimportant	Slightly important	Important	Extremely important
1	2	3	4	5	6	7

Compared to other activities, how important is it for you to be good at physical activity and exercise?

Extremely Unimportant	Unimportant	Slightly Unimportant	Neither important nor unimportant	Slightly important	Important	Extremely important
1	2	3	4	5	6	7

Appendix F

Study 1

Capacity Beliefs

Please circle how confident you are that you can complete each one of these behaviours using the following scale - 0% Not at all confident to 100% Highly confident.

D1	Complete the warm-up and stretching component of the class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D2	Complete the aerobic or cardio component of the class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D3	Complete the strength or toning component of each class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D4	Complete the cool down and flexibility component of the class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D5	Learn and co-ordinate the class exercises.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D6	Stay with the instructor's pace and intensity level throughout the class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D7	Make exercise high in the priority list of my weekly activities.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D8	Make sure that I do not miss more than one week of exercise										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D9	Organise time / work around each fitness class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D10	Attend all scheduled classes regularly.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
D11	Get to each fitness class on time.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Appendix G

Study 1

Self - Efficacy

Please circle how confident you are that you could participate in moderate to vigorous physical exercise (e.g., an exercise class) using the following scale - 0% Not at all confident to 100% Highly confident.

E1 when tired.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E2 during or following a personal crisis.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E3 when feeling depressed.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E4 when feeling anxious.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E5 during bad weather.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E6 when slightly sore from the last time I exercised.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E7 when on holiday.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E8 when there are competing interests (like my favourite TV shows).

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E9 when I have a lot of work to do.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E10 when I haven't reached my exercise goals.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E11 when I don't receive support from my family/friends.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E12 when I have not exercised for a prolonged period of time.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E13 when I have no one to exercise with.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E14 when my schedule is hectic.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E15 when my exercise workout is not enjoyable.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

E16 In general, I believe I could engage in sessions of moderate to vigorous exercise three to five times a week for 30-40 minutes over the next 6 months.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Appendix H

Study 1

Perceived Threat

		Not at All				Very Much
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F1	When participating in your exercise class, to what degree do you perceive yourself as being in a situation where you are being evaluated or judged by other people?	1	2	3	4	5
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F2	When participating in your exercise class, to what degree do you feel threatened by the experience?	1	2	3	4	5
----	---	---	---	---	---	---

F3	Specify what it is about the exercise experience that may lead you to feel threatened.
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Appendix I

Study 1

Physical Activity Enjoyment Scale

Please rate how you generally feel when you participate in your exercise or physical activity class. Circle only one number for each item.

G1	I enjoy it	1	2	3	4	5	6	7	I hate it
G2	I feel bored	1	2	3	4	5	6	7	I feel interested
G3	I dislike it	1	2	3	4	5	6	7	I like it
G4	It's no fun at all	1	2	3	4	5	6	7	It's a lot of fun
G5	I find it energising	1	2	3	4	5	6	7	I find it tiring
G6	It makes me depressed	1	2	3	4	5	6	7	It makes me happy
G7	I feel good physically while doing it	1	2	3	4	5	6	7	I feel bad physically while doing it
G8	It's very invigorating	1	2	3	4	5	6	7	It's not very invigorating
G9	I am very frustrated by it	1	2	3	4	5	6	7	I'm not at all frustrated by it
G10	It's very exhilarating	1	2	3	4	5	6	7	It's not at all exhilarating
G11	It's not at all stimulating	1	2	3	4	5	6	7	It's very stimulating
G12	It gives me a strong sense of accomplishment	1	2	3	4	5	6	7	It does not give me a strong sense of accomplishment

Appendix J
Study 2
Informed Consent Letter

De Montfort University Bedford
Lansdowne Campus
37 Lansdowne Road
BEDFORD
MK40 2BZ

Telephone: (01234) 793416
Email: c_petherick@hotmail.com

October, 2002

Dear Exerciser,

We would like to request your participation in a research project that is being conducted by Ms Caroline Petherick and Professor Howard Hall who are researchers in the School of Contemporary Studies at De Montfort University Bedford.

The research is investigating the thoughts and feelings experienced by exercise / aerobic class participants during their exercise sessions. This particular project is part of an ongoing investigation into exercise motivation. It is hoped that the information gained from this research will help further our understanding of exercisers' motivation.

The project has been authorised by the School of Contemporary Studies at De Montfort University and has received the support of Rosemary Conley. A report of the findings of this research will be made available to you on request, once the investigation has been completed.

Your responses to the questionnaire will be completely anonymous. However, we do request that you complete ALL of the questions. We would like to emphasise that your participation is completely voluntary and that you are free to withdraw consent at any time. If you are willing to take part, please sign the bottom of this consent form.

For further information about this project or your rights as a participant, you may call Caroline Petherick on 01234 793416 or via email at c_petherick@hotmail.com. We greatly appreciate your assistance with the project, and wish to thank-you for taking the time to help.

Sincerely

I understand the above information and give voluntary consent to participate in this investigation.

Signature:

Date:

Appendix K

Study 2

Social Physique Anxiety Scale

In exercise settings, some people feel concerned about their appearance. The following questions are seeking information about how you generally feel about your physique. There are no right or wrong answers. Please indicate the degree to which each statement is characteristic or true for you.

		Not at all True	Slightly	Moderately	Very	Extremely True
A1	I am comfortable with the appearance of my physique/figure.	1	2	3	4	5
A2	I would never worry about wearing clothes that might make me look too thin or overweight.	1	2	3	4	5
A3	I wish I wasn't so uptight about my physique/figure.	1	2	3	4	5
A4	There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively.	1	2	3	4	5
A5	When I look in the mirror I feel good about my physique/figure.	1	2	3	4	5
A6	Unattractive features of my physique/figure make me nervous in certain social settings.	1	2	3	4	5
A7	In the presence of others, I feel apprehensive about my physique/figure.	1	2	3	4	5
A8	I am comfortable with how fit my body appears to others.	1	2	3	4	5
A9	It would make me uncomfortable to know others were evaluating my physique/figure.	1	2	3	4	5
A10	When it comes to displaying my physique/figure to others, I am a shy person.	1	2	3	4	5
A11	I usually feel relaxed when it is obvious that others are looking at my physique/figure.	1	2	3	4	5
A12	When in swimming attire, I often feel nervous about the shape of my body.	1	2	3	4	5

Appendix L

Study 2

Multidimensional Perfectionism Scale

Listed below are a number of statements concerning personal characteristics and traits. Read each item and circle the extent to which you agree or disagree with each item.

		Strongly Disagree			Neutral			Strongly Agree
B1	When I am working on something, I cannot relax until it is perfect.	1	2	3	4	5	6	7
B2	I find it difficult to meet others' expectations of me.	1	2	3	4	5	6	7
B3	One of my goals is to be perfect in everything I do.	1	2	3	4	5	6	7
B4	I never aim for perfection in my work.	1	2	3	4	5	6	7
B5	Those around me readily accept that I can make mistakes too.	1	2	3	4	5	6	7
B6	The better I do, the better I am expected to do.	1	2	3	4	5	6	7
B7	I seldom feel the need to be perfect.	1	2	3	4	5	6	7
B8	Anything that I do that is less than excellent will be seen as poor work by those around me.	1	2	3	4	5	6	7
B9	I strive to be as perfect as I can be.	1	2	3	4	5	6	7
B10	It is very important that I am perfect in everything I attempt.	1	2	3	4	5	6	7
B11	I strive to be the best at everything I do.	1	2	3	4	5	6	7
B12	The people around me expect me to succeed at everything I do.	1	2	3	4	5	6	7
B13	I demand nothing less than perfectionism of myself.	1	2	3	4	5	6	7
B14	Others will like me even if I don't excel at everything.	1	2	3	4	5	6	7
B15	It makes me uneasy to see an error in my work.	1	2	3	4	5	6	7
B16	Success means that I must work even harder to please others.	1	2	3	4	5	6	7
B17	I am perfectionistic in setting my goals.	1	2	3	4	5	6	7
B18	Others think I am okay, even when I do not succeed.	1	2	3	4	5	6	7

		Strongly Disagree			Neutral		Strongly Agree	
		1	2	3	4	5	6	7
B19	I feel that other people are too demanding of me.	1	2	3	4	5	6	7
B20	I must work to my full potential at all times.	1	2	3	4	5	6	7
B21	Although they may not show it, other's get very upset with me when I slip up.	1	2	3	4	5	6	7
B22	I do not have to be the best at whatever I do.	1	2	3	4	5	6	7
B23	My family expects me to be perfect.	1	2	3	4	5	6	7
B24	I do not have very high goals for myself.	1	2	3	4	5	6	7
B25	My parents rarely expect me to excel in all aspects of my life.	1	2	3	4	5	6	7
B26	People expect nothing less than perfection from me.	1	2	3	4	5	6	7
B27	I set very high standards for myself.	1	2	3	4	5	6	7
B28	People expect more from me than I am capable of giving.	1	2	3	4	5	6	7
B29	I must always be successful in everything I do.	1	2	3	4	5	6	7
B30	People around me think that I am still competent even if I make a mistake.	1	2	3	4	5	6	7

Appendix M

Study 2

The Locus of Causality for Exercise Scale

		Strongly Disagree				Neutral			Strongly Agree
C1	I exercise because I like to rather than because I feel I have to	1	2	3	4	5	6	7	
C2	Exercising is not something I would necessarily choose to do, rather it is something that I feel I ought to do	1	2	3	4	5	6	7	
C3	Having to exercise is a bit of a bind but it has to be done	1	2	3	4	5	6	7	

Appendix N

Study 2

The Behavioural Regulations in Exercise Questionnaire 2

Using the scale below, please indicate to what extent each of the following items is true for you.

		Not true for me	Sometimes true for me			Very true for me
D1	I exercise because other people say I should	1	2	3	4	5
D2	I feel guilty when I don't exercise	1	2	3	4	5
D3	I value the benefits of exercise	1	2	3	4	5
D4	I exercise because it's fun	1	2	3	4	5
D5	I don't see why I should have to exercise	1	2	3	4	5
D6	I participate in exercise because my friends/family/partner say I should	1	2	3	4	5
D7	I feel ashamed when I miss an exercise session	1	2	3	4	5
D8	It's important to me to exercise regularly	1	2	3	4	5
D9	I can't see why I should bother exercising	1	2	3	4	5
D10	I enjoy my exercise sessions	1	2	3	4	5
D11	I exercise because others will not be pleased with me if I don't	1	2	3	4	5
D12	I don't see the point in exercising	1	2	3	4	5
D13	I feel like a failure when I haven't exercised in a while	1	2	3	4	5
D14	I think it's important to make the effort to exercise regularly	1	2	3	4	5
D15	I find exercise a pleasurable activity	1	2	3	4	5
D16	I feel under pressure from my friends/family/partner to exercise	1	2	3	4	5
D17	I get restless if I don't exercise regularly	1	2	3	4	5
D18	I get pleasure and satisfaction from participating in exercise	1	2	3	4	5
D19	I think exercise is a waste of time	1	2	3	4	5

Appendix O
Study 2
Perceived Ability Scale

E1 In general, how would you rate your ability at physical activity and exercise?

Very Poor	Poor	Not Very Good	Average	Good	Very Good	Excellent
1	2	3	4	5	6	7

E2 Compared with others in your exercise class, how good are you at physical activity and exercise?

Very Poor	Poor	Not Very Good	Average	Good	Very Good	Excellent
1	2	3	4	5	6	7

E3 Compared with others your age, how good are you at physical activity and exercise?

Very Poor	Poor	Not Very Good	Average	Good	Very Good	Excellent
1	2	3	4	5	6	7

Appendix P

Study 2

Perceived Importance Scale

E4 For me, being good at physical activity and exercise is:

Extremely Unimportant	Unimportant	Slightly Unimportant	Neither important nor unimportant	Slightly important	Important	Extremely important
1	2	3	4	5	6	7

E5 Compared to other activities, how important is it for you to be good at physical activity and exercise?

Extremely Unimportant	Unimportant	Slightly Unimportant	Neither important nor unimportant	Slightly important	Important	Extremely important
1	2	3	4	5	6	7

Appendix Q

Study 2

Capacity Beliefs

Please circle how confident you are that you can complete each one of these behaviours using the following scale - 0% Not at all confident to 100% Highly confident.

F1	Complete the warm-up and stretching component of the class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F2	Complete the aerobic or cardio component of the class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F3	Complete the strength or toning component of each class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F4	Complete the cool down and flexibility component of the class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F5	Learn and co-ordinate the class exercises.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F6	Stay with the instructor's pace and intensity level throughout the class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F7	Make exercise high in the priority list of my weekly activities.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F8	Make sure that I do not miss more than one week of exercise										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F9	Organise time / work around each fitness class.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F10	Attend all scheduled classes regularly.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
F11	Get to each fitness class on time.										
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Appendix R

Study 2

Self - Efficacy

Please circle how confident you are that you could participate in moderate to vigorous physical exercise (e.g., an exercise class) using the following scale - 0% Not at all confident to 100% Highly confident.

G1	when tired.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G2	during or following a personal crisis.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G3	When feeling depressed.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G4	When feeling anxious.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G5	During bad weather.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G6	When slightly sore from the last time I exercised.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G7	When on holiday.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G8	When there are competing interests (like my favourite TV shows).	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G9	When I have a lot of work to do.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G10	When I haven't reached my exercise goals.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G11	When I don't receive support from my family / friends.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G12	When I have not exercised for a prolonged period of time.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G13	When I have no-one to exercise with.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G14	When my schedule is hectic.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
G15	When my exercise workout is not enjoyable.	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

G16 In general, I believe I could engage in sessions of moderate to vigorous exercise three to five times a week for 30-40 minutes over the next six months.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Appendix S

Study 2

Perceived Threat

	Not at All	1	2	3	4	Very Much
H1 When participating in your exercise class, to what degree do you perceive yourself as being in a situation where you are being evaluated or judged by other people?						
H2 When participating in your exercise class, to what degree do you feel threatened by the experience?						
H3 Specify what it is about the exercise experience that may lead you to feel threatened.						

Appendix T

Study 2

Physical Activity Enjoyment Scale

Please rate how you generally feel when you participate in your exercise or physical activity class. Circle only one number for each item.

J1	I enjoy it	1	2	3	4	5	6	7	I hate it
J2	I feel bored	1	2	3	4	5	6	7	I feel interested
J3	I dislike it	1	2	3	4	5	6	7	I like it
J4	I find it pleasurable	1	2	3	4	5	6	7	I find it un-pleasurable
J5	I am very absorbed in the activity	1	2	3	4	5	6	7	I am not at all absorbed in the activity
J6	It's no fun at all	1	2	3	4	5	6	7	It's a lot of fun
J7	I find it energizing	1	2	3	4	5	6	7	I find it tiring
J8	It makes me depressed	1	2	3	4	5	6	7	It makes me happy
J9	It's very pleasant	1	2	3	4	5	6	7	It's very unpleasant
J10	I feel good physically	1	2	3	4	5	6	7	I feel bad physically while doing it
J11	It's very invigorating	1	2	3	4	5	6	7	It's not at all invigorating
J12	I am very frustrated by it	1	2	3	4	5	6	7	I'm not at all frustrated by it
J13	It's very gratifying	1	2	3	4	5	6	7	It's not at all gratifying
J14	It's very exhilarating	1	2	3	4	5	6	7	It's not at all exhilarating
J15	It's not at all stimulating	1	2	3	4	5	6	7	It's very stimulating
J16	It gives me a strong sense of accomplishment	1	2	3	4	5	6	7	It does not give me a strong sense of accomplishment
J17	It's very refreshing	1	2	3	4	5	6	7	It's not at all refreshing
J18	I feel as though I would rather be doing something else	1	2	3	4	5	6	7	I feel as though there is nothing else I would rather be doing